CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF CITY PLANNING

DRAFT
83.331 E

100 FIRST STREET

OFFICE BUILDING

ENVIRONMENTAL IMPACT REPORT

PUBLICATION DATE: FEBRUARY 1, 1985
PUBLIC HEARING DATE: MARCH 7, 1985
PUBLIC COMMENT PERIOD: FEBRUARY 1, 1985 TO MARCH 20, 1985

WRITTEN COMMENTS SHOULD BE SENT TO
THE ENVIRONMENTAL REVIEW OFFICER
450 McALLISTER STREET, FIFTH FLOOR, SAN FRANCISCO, CA 94102

DATE: February 1, 1985

TO: Distribution List for the 100 First Street Draft EIR

FROM: Alec S. Bash, Environmental Review Officer

RE: Request for the Final Environmental Impact Report for 100 First Street

This is the Draft of the Environmental Impact Report for 100 First Street. A public hearing will be held on the adequacy and accuracy of this document on March 7, 1985. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses" which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the Draft will automatically receive a copy of the Comments and Responses document along with notice of the date reserved for certification (in this case, probably about eight to ten weeks after the hearing on the Draft); others may receive such copies and notice on request or by visiting our office. This Draft EIR together with the Summary of Comments and Responses document will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR, if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR. Copies will also be available at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor, San Francisco, California, 94102.

Thank you for your interest in this project.

PLACE
POSTAGE
HERE

Department of City Planning
Office of Environmental Review
450 McAllister Street, 5th Floor
San Francisco, CA 94102

Attn: Carol Roos, EIR Coordinator
83.331 E - 100 First St. Project

CUT ALONG DOTTED LINE

RETURN REQUEST REQUIRED FOR FINAL ENVIRONMENTAL IMPACT REPORT

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

To: Department of City Planning,
Office of Environmental Review

Please send me a copy of the Final EIR.

Signed: _____

Print Your Name and Address Below

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DEPARTMENT OF CITY PLANNING

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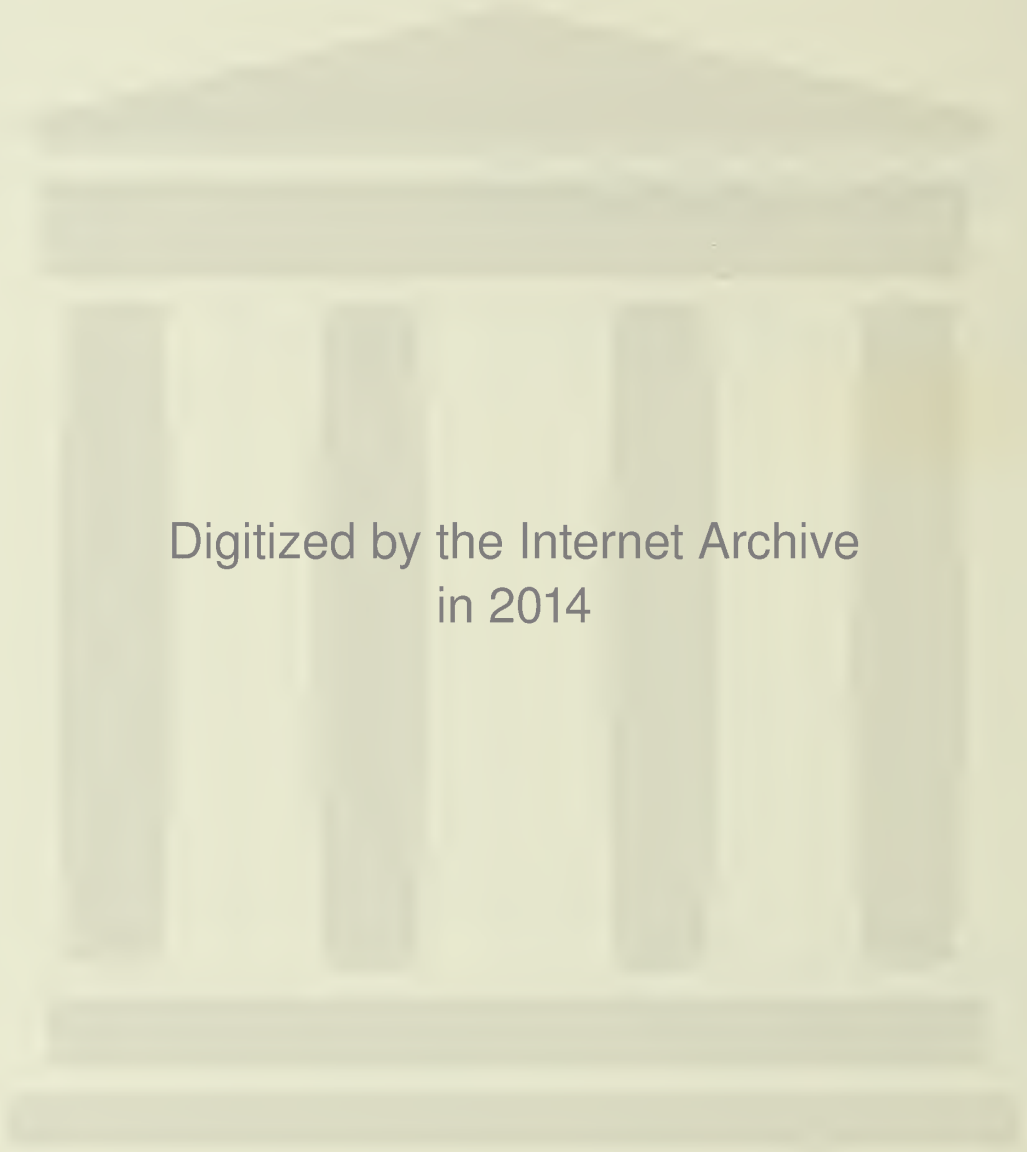

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I. SUMMARY

A. PROJECT DESCRIPTION

Barker Interests Limited proposes to construct a office and retail building at the southwest corner of the intersection of First and Mission Streets. The project architects are Skidmore, Owings and Merrill - Houston and San Francisco offices.

The project site encompasses Lots 1, 2, 3, 4, 5, 84 and 87 of Assessor's Block 3721 in the block bounded by Mission, First, Howard and Second Streets. The 40,500-square-foot site is occupied by seven buildings ranging from one to five stories and containing restaurant and retail (21,700 sq. ft.), downtown support (2,000 sq. ft.), office (6,500 sq. ft.), studio (8,100 sq. ft.), parking (44,400 sq. ft.) and light-manufacturing (20,400 sq. ft.) uses, and vacant (15,125 sq. ft.) space. Six of the buildings on the site would be demolished, and the garage at 521 Mission Street would be retained.

The 385-foot-high, 26-story tower would include ground-floor retail and lobby space, and 25 floors of offices. There would be one setback at the fifth level on Mission Street; the upper tower would feature a series of concentric setbacks to the building top. There would be one basement level containing mechanical uses. As measured under the Downtown Plan, the building would contain about 8,700 gross square feet of retail and restaurant space on ground-floor and mezzanine levels, and about 452,600 gross square feet of office space. The building would have a gross floor area applicable to the Floor Area Ratio (FAR) of 459,900 square feet. The 85 existing parking spaces in the 521 Mission Street garage would be retained as short-term accessory parking. This building would be rehabilitated, including development of a 14,000-square-foot sun terrace on its roof. Under the Downtown Plan, the project would have an on-site FAR of 11.4:1. Transfer of development rights (TDR) from the architecturally significant (Downtown Plan Category I) 74 New Montgomery Street building is proposed, resulting in a combined FAR over the two sites of less than 10:1.

Building entrances would be on First and Mission Streets. A two-story-high pedestrian arcade would run the length of the proposed office tower along Mission Street. Access to four freight and two service loading spaces would be from Minna Street.

Demolition of six of the seven existing buildings on the site, proposed to begin in mid-1985, would take about nine weeks. Construction would then continue for approximately 82 weeks, a total expected 21-month construction period, until project completion and full occupancy in 1987.

B. MAIN ENVIRONMENTAL EFFECTS

LAND USE AND ZONING

The site is in the C-3-0 (Downtown Office) Use District. The western portion of the site (Block 84) is the 550-S Height and Bulk District as defined by the proposed amendments to the City Planning Code to implement the Downtown Plan (November 29, 1984). The portion of the site proposed to contain the project tower is in a 350-S Downtown Plan Height and Bulk district. The project would provide open space and art works and comply with the height and average length and diagonal dimensions required by the Plan. It would exceed the permitted average upper tower floor area of 12,000 square feet by about 3,000 square feet, necessitating an exception to the bulk limits of the Plan. The project would continue the trend of high-rise office development in the South of Market area.

HISTORIC AND ARCHITECTURAL RESOURCES

The project would require demolition of six buildings. None are included on the City's List of Architecturally and/or Historically Significant Buildings in the Downtown, rated in the 1976 Department of City Planning Inventory, or included in Categories I to IV or conservation districts of the Downtown Plan. Four of the buildings are rated "C" by the Foundation for San Francisco's Architectural Heritage.

URBAN DESIGN AND VISUAL QUALITY

The proposed office tower would be visible from long-range viewpoints, such as Twin Peaks, Potrero Hill and the San Francisco - Oakland Bay Bridge. Its concentrically

stepped upper office tower would contrast with existing box-shaped high-rise structures on the southern City skyline. The tower would be similar in height and scale to other, recently constructed highrises in the project area. It would differ in scale from existing low- and mid-rise buildings in the same block and the South of Market area.

SHADOWS AND WIND

The project would not shadow any properties under the jurisdiction of the Recreation and Park Commission (those covered by Proposition K, the Park Shadow Ban Initiative). It would increase afternoon shadows on the Transbay Terminal open and passenger unloading area throughout the year. On December 21st at 4:00 p.m., the project would cast new shadow across about 30% of the area (60% is now shaded by existing buildings). During the spring, 4:00 p.m. project shadows would newly shade about 40% of the area. During summer, the project would shade the southwest corner of the open and passenger unloading area. On September 21st at 4:00 p.m., the project would shade the southwestern portion (about 60%) of the area. Shadows from the project would have the greatest impact during the afternoon in the fall; at all other times, shadow effects would be less.

Wind speeds on the Transbay Terminal open and unloading area would not increase noticeably with the project for the three wind directions tested. With the project, all winds would be less than 7.2 mph for west and northwest winds. For southwest winds, wind speeds on Mission and Minna Streets would increase, exceeding the 11 mph comfort level at four locations. Section 148 of the proposed ordinances to implement the Downtown Plan specifies that development must "not cause ground level wind currents to exceed, more than 10% of the time year round, between 7:00 a.m. and 6:00 p.m., the comfort level of 11 mph equivalent wind speed in areas of substantial pedestrian use." The wind testing methodology is being refined to produce a single value for wind velocity to determine compliance with Section 148.

TRANSPORTATION, CIRCULATION AND PARKING

Sidewalk detours and curb lane closures on both the Mission Street and FIrst Street frontages would be necessary during project construction. Demolition and excavation would each generate an average of 25 to 30 truck round trips per day. Construction truck traffic would be limited to the period between 9:00 a.m. and 3:30 p.m.

The project would generate about 5,980 net new person trips per day. About 1,070 new outbound trips would occur during the p.m. peak period, 670 of these during the p.m. peak hour.

The project would retain an existing 85-space short-term parking garage which is currently used to capacity. Estimated equivalent daily parking demand from the project would be about 340 spaces, resulting in an unmet demand of 340 spaces.

The proposed project would generate about 260 new pedestrian trips on the adjacent sidewalks during the noon 15-minute peak period and about 180 new pedestrian trips during the p.m. 15-minute peak period. Sidewalk operations, currently in the unimpeded and impeded ranges at locations adjacent to the project site during both the noon hour and p.m. peak hour, would be in the impeded range with the addition of anticipated pedestrian trips from the project.

The project would add about 300 outbound trips to Muni, 240 trips to BART, and 170 new outbound trips to other transit agencies during the p.m. peak period. The project would generate an annual cost deficit to Muni of about $74,300, which would be less than its contributions to the General Fund, the Transit Development Impact Fee, and sales tax revenues. The project would result in an annual net operating deficit to BART of about $291,500. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

Cumulative transportation impacts have been calculated by a development-list- based method used in most past San Francisco EIRs and by the forecast methodology first presented in the Downtown Plan EIR, certified October 18, 1984. The two methods are not directly comparable because the Downtown Plan EIR method forecasts probable employment growth and space growth for all uses in the C-3 Districts of downtown, with a more general projection of transportation and air quality effects for non-C-3 areas, for the 1984-2000 time frame, while the list-based method covers specific projects in a larger area of downtown but is limited to similar office and retail projects and covers a more limited time frame. In addition, the Downtown Plan EIR methodology accounts for changes in residential distribution of travel and in travel mode (e.g. auto versus transit) while the list-based analysis assumes no change in the regional distribution of trips or in the travel modes used by commuters.

Both methods show greatest cumulative transportation impacts on Muni and BART, although the list-based method shows more trips on Muni while the Downtown Plan EIR forecast method shows higher results on BART. This difference between the two methods is largely due to differences in 1) the time frames for which the projections were made; 2) assumptions about San Francisco and regional residence patterns; and 3) roadway/transit capacity availability assumptions.

The transit demand from the project would represent about 0.4% of the total transit demand in the year 2000. Cumulative development under the Downtown Plan to the year 2000 in conjunction with planned capacity increases of transit carriers would be expected to cause the following changes in transit levels of service during the peak period: Muni Northeast Corridor - D to C, BART Transbay - F to E, A-C Transit - C to D, Golden Gate Ferry - B to A, Tiburon Ferry - B to C, and CalTrain - B to C.

With cumulative development by the year 2000 sidewalk and crosswalk operations would be in the unimpeded to impeded range for all locations studied.

Cumulative development, including that from the proposed project, by the year 2000 would be expected to further exacerbate the existing peak-hour traffic Level of Service (LOS) "F" conditions at the intersection of First and Harrison Streets and worsen existing LOS "E" conditions at the intersection of Mission and Beale Streets to LOS "F".

About 0.1% of year 2000 Bay Bridge peak-period demand would be due to the project. The project also would represent about 0.1% of peak-period demand on the Golden Gate Bridge, 0.2% on US 101 (south of Harney Way), and 0.1% on I-280 (between Alemany Boulevard and San Jose Avenue).

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent less than one percent of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in the year 2000 if vehicular demand occurs as projected. Alternatively, if the goals of the Downtown Plan are achieved, total parking demand in the year 2000 would increase by about six percent over 1984 and there would not be a parking deficit.

The amendments to the Planning Code implementing the Downtown Plan (November 1984) would require five loading spaces for the project; the project would provide the equivalent of five spaces. Because all of the necessary truck maneuvering room would not be provided on-site, the project would require an exception under Sections 155(d) and 309.

AIR QUALITY

Project-related vehicular traffic would add to cumulative regional pollutant emissions. Emissions of total suspended particulates (TSP) generated by the project and cumulative development would increase TSP concentrations, which would increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility.

Currently, the eight-hour CO standard is estimated to be exceeded at the intersection of Beale and Mission Streets. However, local CO concentrations are predicted to be less in 1990 and 2000 than in 1984, and would not exceed the standards, because the effects of emission controls on new vehicles would offset increases in traffic volumes and congestion. Cumulative downtown development is projected by the Downtown Plan EIR potentially to result in violations of the eight-hour CO standard at the Brannan and Sixth Streets intersection.

ENERGY

Site development, fabrication and transportation of building materials, worker transportation, and building construction would require about 800 billion Btu of gasoline, diesel fuel, natural gas, and electricity. The project would consume about 95,000 Btu per gross square foot annually (320 Btu per day), the equivalent of about 8,753 barrels of oil annually. The building would be more energy-efficient than Title 24 of the California Administrative Code requires.

Yearly estimated electrical consumption for the projected 19 million square feet of additional downtown office space at the time of buildout (mid-1990s) of the projects on the March 10, 1984 cumulative list would be approximately 340 million kilowatthours (kWh) of energy per year. PG&E projects an increase in annual energy demand over the next decade of about 200 million kWh. The lower PG&E estimate is largely due to a lower development estimate.

The Downtown Plan EIR predicts an increase of about 210 million kWh of annual electrical consumption between 1984 and 1990, and of about 330-350 million kWh of annual consumption for the years between 1990-2000. The PG&E projections and Downtown Plan EIR do not predict energy consumption for exactly the same time period and thus are not comparable.

CONSTRUCTION NOISE

Project construction would increase noise levels in the vicinity during the 21-month construction period. Highest average construction noise levels experienced in offices and stores near the site would interfere with speech. Piledriving and the operation of construction equipment could temporarily raise the noise level by 20 dBA at the Terminal Plaza building directly across First and Mission Streets from the site (440-454 Mission Street), which houses an ITT telecommunications installation. ITT has indicated that it expects no adverse impacts on the telecommunication facilities from project piledriving. Construction noise would be audible in Golden Gate University, where classes are held until 9:30 p.m. Evening piledriving would be more noticeable to occupants of the University with the reduced background traffic noise. The sponsor most obtain a special permit for piledriving after 8:00 p.m.

EMPLOYMENT AND HOUSING FACTORS

The existing garage at 521 Mission Street, which employs eight people, would continue operation. The project would displace 23 existing on-site businesses that provide about 190 jobs. These jobs are mostly blue-collar and service-sector. After completion, the project would accommodate a total of about 1,725 permanent full-time jobs, an increase of 1,525 for the site. About 98% of these employees would be office workers. About 6,160 additional jobs in the Bay Area would result from the employment multiplier effect of project operation. The project would require about 410 person-years of construction labor. About 720 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction.

According to the City's Office Housing Production Program formula, project office workers would generate a net demand for about 399 housing units in San Francisco.

GROWTH INDUCEMENT

Increases in downtown office space from the proposed project would contribute to growth of local and regional markets for housing, goods and services. Although employment growth would not be reflected directly in increases in demand for housing and City services to residents, it is expected that some downtown workers would want to live in San Francisco, intensifying the demand for housing, retail goods and services. The project would continue the trends of loss of industrial and blue collar jobs and the increase in land values and rents in the South of Market area.

C. MITIGATION MEASURES

Major measures identified that would mitigate potentially significant environmental effects include the following:

- Construction truck traffic would be limited to the hours between 9:00 a.m. and 3:30 p.m. and regulated to avoid peak-hour traffic congestion and to accommodate queueing of Muni buses at the peak hour. Construction activity would be coordinated with that of concurrent projects to minimize cumulative traffic effects of lane closures and street excavation.

- The project would provide a 15-foot-wide pedestrian arcade on the Mission Street frontage, which would increase the effective sidewalk width by seven feet, facilitating pedestrian flows. Paving, landscaping and structures in the sidewalk adjacent to the project area would be designed to minimize interference with pedestrians (subject to Department of Public Works approval).

- The project would be more energy-efficient than required by Title 24 of the California Administrative Code.

- As recommended by the Environmental Protection Element of the San Francisco Comprehensive Plan, an analysis of noise reduction requirements would be prepared for the project sponsor, and recommended noise insulation features would be included as part of the project.

- The general contractor would muffle and shield intakes and exhaust and impact tools, and construct barriers around the site and around stationary equipment, to reduce construction noise by as much as five dBA.

- Detailed geotechnical and final soils reports would be prepared by California-licensed engineers. The recommendations of these reports would be followed for excavation and construction work on the site.

- The project sponsor would require that the general contractor predrill holes for piles in order to minimize noise and vibration from piledriving, and limit piledriving activity to result in least disturbance to neighboring uses.

- The project sponsor has received preliminary approval from the Department of City Planning for 216 credits toward mitigation of the project-generated housing demand of 399 units. These credits have been secured as part of the approved Metroplace housing development in San Francisco. Housing credits are not equivalent to dwelling units, and the City Planning Commission would determine whether proposed measures would mitigate project effects.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- Through CULCOP, PG&E could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place at off-peak hours and on weekends, and at the same time that the street would be opened for construction of the project.

- The City could adopt and implement the transportation improvements described in the Downtown Plan. Cumulative transportation impacts within San Francisco would be reduced by the improvements, and, to the extent that San Francisco could influence transportation improvements recommended by the Plan for areas outside the City, adoption of the Plan would reduce cumulative regional impacts caused by downtown growth.

D. ALTERNATIVES TO THE PROPOSED PROJECT

ALTERNATIVE A: NO PROJECT

Environmental characteristics of this alternative would be the same as with current conditions plus cumulative Downtown development. Four "C"-rated buildings would be retained. The no-project alternative would preserve options for future development at the site.

ALTERNATIVE B: REDUCED SHADOW, 4.6:1 FAR

A seven-story office building would contain ground-floor retail and circulation space and 117,300 gross square feet of office space, for an FAR of 4.6:1 as calculated under the Downtown Plan. The four-story base of the building would cover Lots 1, 2, 3, 4, 5 and 87 of the site to a height of 60 feet. There would be three additional levels stepped back progressively to the building top at 110 feet. A pedestrian arcade would extend along Minna Street. To conform with the requirements of the Downtown Plan, there would be three loading docks accessible from Minna Street. No parking would be provided.

The lower height of this alternative, compared to that of the project, would be less visible in mid- and long-range views. It would not cast shadows on the passenger unloading

area in front of the Transbay Terminal from March 21st to September 21st. Transportation, circulation, parking, employment, air quality, energy, and transportation energy impacts would be proportionately less (about 75% less) than those of the proposed project. Construction noise impacts would of similar intensity but shorter duration than those of the proposed project.

The alternative design would provide employment for about 460 persons, about 1,265 fewer than would the proposed project. According to OHPP, there would be a demand for about 101 dwelling units in San Francisco, 298 fewer than for the proposed project.

ALTERNATIVE C: INTERIM CONTROLS, 10:1 FAR

The Interim Controls do not include the provisions of the Downtown Plan providing for the transfer of development rights (TDR). Because the project would include transfer of development rights, it cannot be approved by the City Planning Commission while the Interim Controls remain in effect. This alternative would be an office tower occupying the same building envelope as the project and containing about 396,000 gross square feet of offices (about 56,600 square feet less than the project) on the fourth through 26th floors and 29,000 gross square feet of retail space (about 20,300 square feet more than the project) located on the ground floor and second- and third-floor mezzanine levels. The office space and about 9,000 square feet of the retained parking garage would apply to the FAR, for an FAR of 10:1. The retail space in the structure is proposed to be excluded from the FAR calculation under Section 102.8(b.)13 of the Interim Controls. Massing, site layout and freight loading provisions of the alternative would be the same as those of the project.

Urban design, visual, shadow, wind, and energy effects would be the same as those of the project. The relation of the alternative to the Downtown Plan would be similar. Due to the greater retail area, the alternative would generate about 34% more daily trips (about ten percent more at peak hour). Transportation energy and air quality impacts would be similarly increased.

Employment would be provided for about 1,575 people, about 200 fewer than with the project. According to OHPP, there would be a demand for about 346 dwelling units in San Francisco, about 53 fewer than with the project.

ALTERNATIVE D: 1979 CITY PLANNING CODE WITHOUT AMENDMENTS IMPLEMENTING THE DOWNTOWN PLAN, 11.9:1 FAR

This alternative evaluates compliance of the same development as the project with the City Planning Code (September 1979). The alternative would comply with all of the provisions of the 1979 Code (without the amendments implementing the Downtown Plan). The building would be identical to the proposed project; its environmental impacts would be the same.

II. PROJECT DESCRIPTION

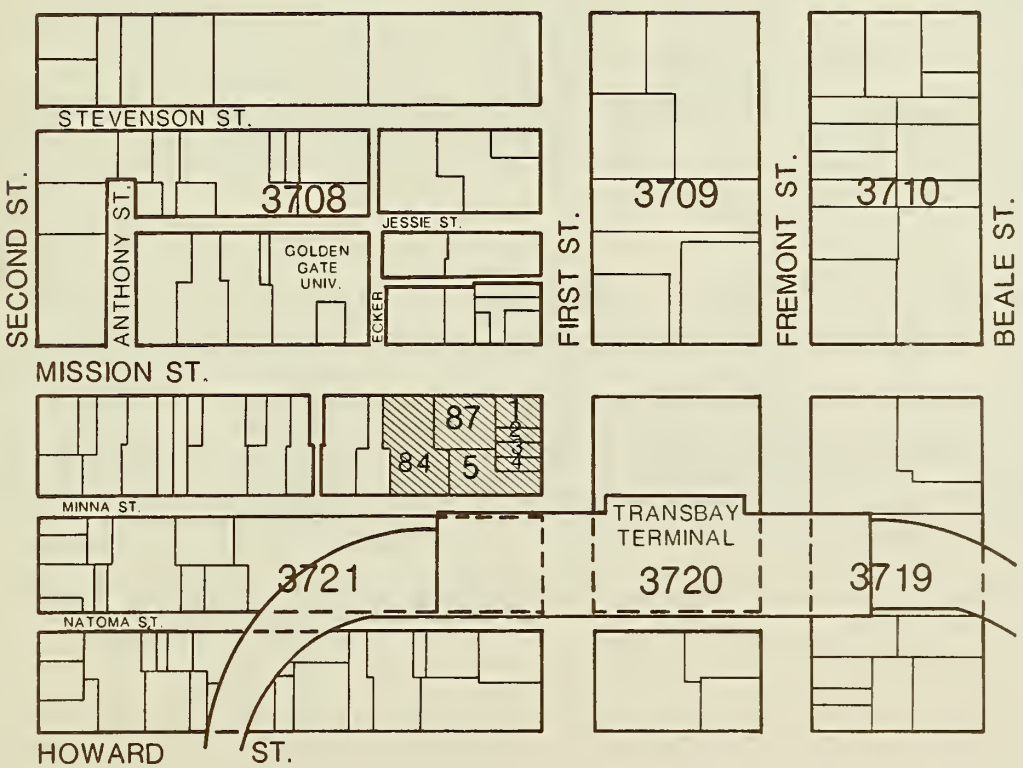
A. PROJECT SPONSOR'S OBJECTIVES

Barker Interests Limited proposes to build a 26-story office and retail building at the intersection of Mission and First Streets, San Francisco. The architects are Skidmore, Owings and Merrill - Houston and San Francisco offices. The project sponsor's objectives are to develop high quality office and retail space at one of the City's prime locations for access and skyline image; build an office building that would appeal to major space users (that is, larger employers) by providing about 452,600 gross square feet of office space, with office floors containing up to about 20,600 square feet, and retail space at the ground level; provide an impetus to redevelop the area by providing a sun terrace and vest pocket park immediately west of the proposed tower; and enhance the skyline of San Francisco with a unique building design.

B. PROJECT LOCATION

The proposed project would be located at 100 First Street at Mission Street, in the City and County of San Francisco, and would occupy Lots 1, 2, 3, 4, 5, 84 and 87 at the northeastern corner of Assessor's Block 3721. Assessor's Block 3721 is bounded by Mission Street on the north, First Street on the east, Howard Street on the south, and Second Street on the west (see Figure 1)./1/ The 40,500-square-foot project site fronts Mission, First, and Minna Streets, and is across First Street from the Transbay Transit Terminal (referred to herein as Transbay Terminal). The project would replace six buildings, ranging from one to five stories, containing restaurant, retail, light-manufacturing, downtown support, office and studio uses, and vacant space. The buildings proposed to be demolished are 511-519 Mission Street, 501-507 Mission/104-106 First Street, 110 First Street, 112 First Street, 116 First Street, and 118-124 First Street (at Minna Street). The two-story parking garage at 521 Mission Street, occupying Lot 84 (the westernmost parcel on the site), would be retained and renovated as part of the project.

The site is in the C-3-0 (Downtown Office) Use district. Under the Downtown Plan, adopted by the City Planning Commission on November 29, 1984, and proposed



PROJECT SITE

(Assessor's Block 3721, Lot Nos. 1, 2, 3, 4, 5, 84, & 87)

FIGURE 1:
PROJECT LOCATION
100 FIRST STREET

0 200
FEET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES

amendments to the City Planning Code to implement the Plan,/2/ the basic Floor Area Ratio (FAR) is 10:1. The Downtown Plan 350-S Height and Bulk District for the eastern portion of the site allows a maximum height of 385 feet, including an optional upper tower extension of ten percent in building height. The 550-S Height and Bulk District for the western portion of the site (Lot 84) allows a maximum height of 605 feet.

C. PROJECT CHARACTERISTICS

Project characteristics are summarized in Table 1. The project is reviewed throughout this EIR in the context of the Downtown Plan./3/ The 385-foot-tall project would be a 26-story building, with one subsurface level. As calculated under the Downtown Plan, the building would contain about 459,900 gross square feet of floor area; excluding mechanical and building storage, ground-floor and pedestrian and service uses, ground-floor and mezzanine-level retail and restaurant space, and about 31,700 square feet of retained accessory parking space equal to seven percent of the proposed gross floor area. This would result in a Floor Area Ratio (FAR), the ratio of building floor area to site size, of 11.4:1 for the 40,500-square-foot development site. There would be a ground-floor lobby and retail level, a second-level mezzanine containing a restaurant and office space, and 24 stories of office space. The basement level would contain mechanical and building storage space (see Figure 2, p. 16). Four truck loading docks and two service vehicle spaces would be accessible from Minna Street. About 85 parking spaces would be retained as short-term accessory parking in the existing garage at 521 Mission Street. A sun terrace would be built above the second level of the garage and connected to the second-level mezzanine of the office tower.

The building would include about 452,600 gross square feet of offices, 5,800 gross square feet of retail space and 2,900 gross square feet of restaurant space. Total net changes in floor area for the site would be an increase of about 446,100 gross square feet of offices, and net decreases as follows: about 13,000 gross square feet of restaurant and retail space, 20,400 gross square feet of light-manufacturing space, 10,100 gross square feet of downtown support and studio space, and 15,125 gross square feet of vacant space (formerly used primarily as downtown support). The number of parking spaces woud remain the same.

TABLE 1: PROJECT CHARACTERISTICS

NUMBER OF STORIES OF NEW CONSTRUCTION/a/		HEIGHT AND BULK MEASUREMENTS (ft.) AND FAR	Proposed Project	Allowable Under Downtown Plan
Retail/Lobby	1	Height (east site):	385	385 /b/
Restaurant/Office (2nd-level Mezzanine)	1	Height (west site):	27	605 /b/
Office	24	Length (lower tower):	145	160
Total Stories	26	Length (upper tower):	115	140
		Diagonal (lower tower):	185	200
		Diagonal (upper tower):	145	160
SITE SIZE	40,500 sq. ft.	Basic FAR/c/:	11.4:1/c/	10:1 plus TDR/c/

PROPOSED FLOOR AREA	Area Applicable To FAR Under Downtown Plan (gsf)	Total Gross Floor Area (gsf)
NEW CONSTRUCTION		
Basement Mechanical and Storage	0 /d/	24,600
Lobby	0 /d/	2,900
Retail	0 /d/	5,800
Other Ground-Floor Uses	0 /d/	7,700
Restaurant (2nd-level Mezzanine)	0 /d/	2,900
Offices	452,600	452,600
Subtotal	452,600	496,500
RETAINED GARAGE	7,300 /e/	44,400
TOTAL	459,900	540,900

/a/ Excluding the basement level containing mechanical equipment and building storage. There is also a basement parking level under the existing two-level accessory parking garage to be retained on Lot 84.
/b/ Under the Downtown Plan, the project tower would be located in a 350-S Height and Bulk district. Under Section 263.5 (November 1984) in the proposed amendments to the Planning Code to implement the Plan, additional height of up to ten percent (385 feet) may be allowed, provided the volume of the upper tower extension (above 350 feet) is reduced. Similarly, a maximum height of 605 feet would be possible in the 550-S district (Lot 84).
/c/ To permit the FAR on the development site to exceed 10:1, about 54,900 gross square feet of transferable development rights (TDRs) would be transferred from 74 New Montgomery Street, under Section 128 of the proposed amendments. The Floor Area Ratio (FAR) of the combined development and preservation lots would be less than 10:1.
/d/ Under Section 102.8(b)12-13, as proposed to implement the Downtown Plan, gross floor area in the C-3-0 district is defined to exclude convenience, retail and personal service and pedestrian circulation and building service space located on the ground-floor and mezzanine levels (not to exceed 75% of ground-floor interior and open space areas), and mechanical and building storage space.
/e/ Under Section 204.5(c) of the City Planning Code, parking area equalling seven percent of the gross floor area would be accessory parking; the remaining 7,300 gross square feet (above ground) in the existing parking garage would be applicable to the FAR.

SOURCE: Environmental Science Associates, Inc., and Skidmore, Owings and Merrill - Houston

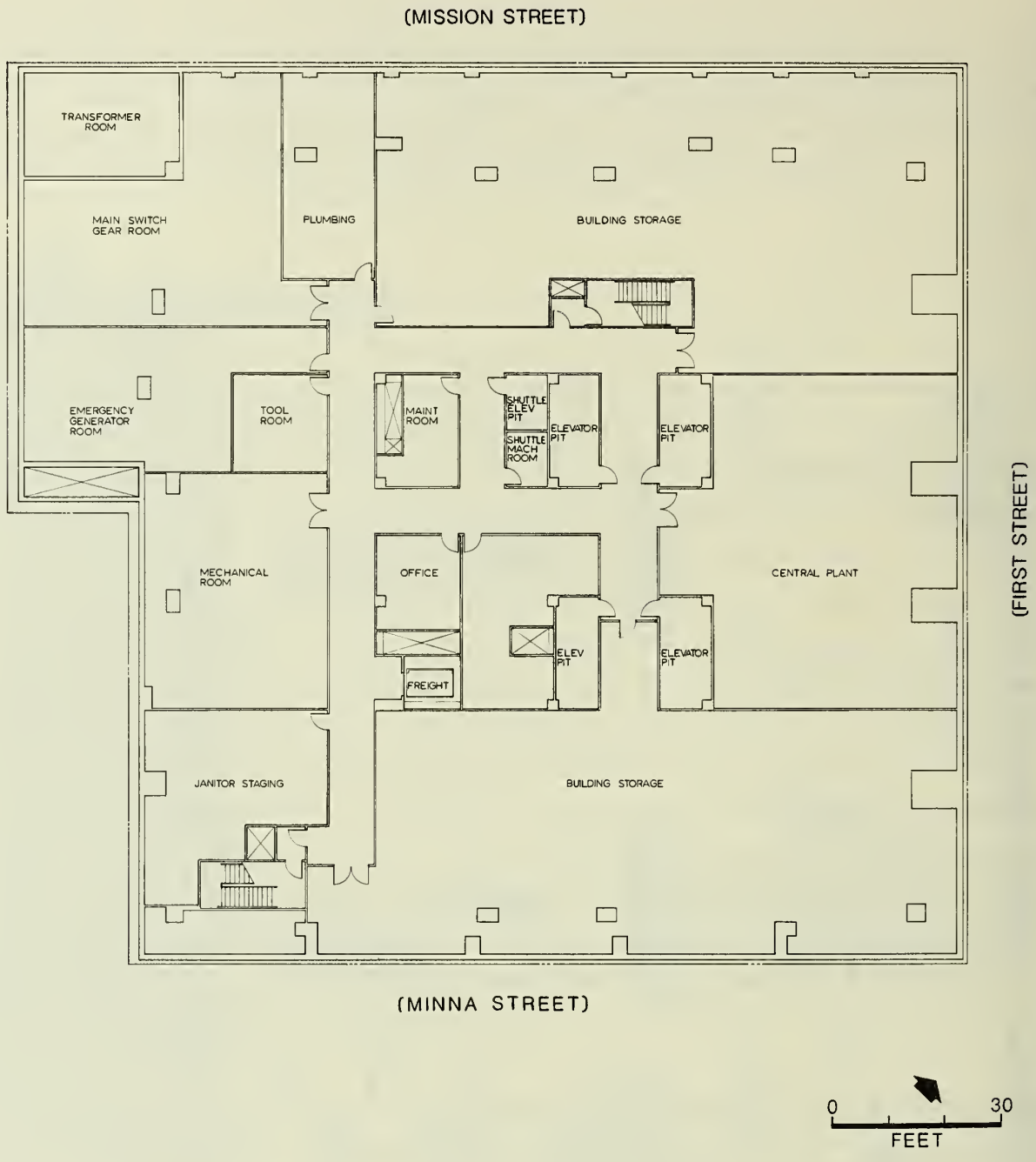


FIGURE 2:
BASEMENT FLOOR PLAN
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

The project would be built to the property lines on Mission, First and Minna Streets. Above 68 feet in height, the tower would be set back about 15 feet from the Mission Street property line. The tower would be set back about 20 feet along the northern 80 feet of the western lot line, forming an 850-square-foot, ground-level, landscaped vest pocket park (also called a "snippet") west of the building. A terraced stair would lead from the vest pocket park to a sun terrace to be constructed on top of the existing two-level parking garage.

The ground floor would contain retail uses and pedestrian circulation, with pedestrian entrances on Mission and First Streets (see Figure 3). Escalators would lead from the ground-floor lobby to the second (or mezzanine) level, which would contain a restaurant, offices, the main office lobby and elevator access to the office tower (see Figure 4, p. 19). The typical area of each office floor would be about 20,620 square feet for the third floor, 20,480 square feet for the fourth floor, 20,050 square feet for the fifth through the 17th levels, 18,480 square feet for levels 18 through 21, 13,980 square feet for levels 22 and 23, and 12,460 square feet for the 24th and 25th levels. The 26th floor would contain about 10,150 square feet of office space (see Figures 5-7 pp. 20 - 22).

The pedestrian areas on Minna, First and Mission Streets would be paved with patterned stone or stone aggregate. There would be a pedestrian arcade on Mission Street. Street trees in planters would be located along Mission and First Streets, and a newspaper kiosk would be placed at the corner. Stone-clad planters would flank the entrances on First and Mission Streets.

The newly constructed building would be a three-part vertical composition with a distinct base containing a lobby and retail level, a restaurant/office level, and two floors of offices; a middle section containing offices; and a concentrically stepped upper office tower (see Figures 8 and 9, pp. 23 - 24).

To emphasize the retail uses, light-colored, polished stone would be combined with large, clear-glass lobby windows extending from street level to the first cornice on the building at a height of about 40 feet. The main entrance on First Street, designed as a two-story, clear-glass plane articulated with a metal grille, would be faced with brass. The glass would permit the lobby to be viewed from the street (see Figure 21, p. 77). Windows of clear glass would also be located on Mission Street and the western frontage facing the

text continues on p. 25

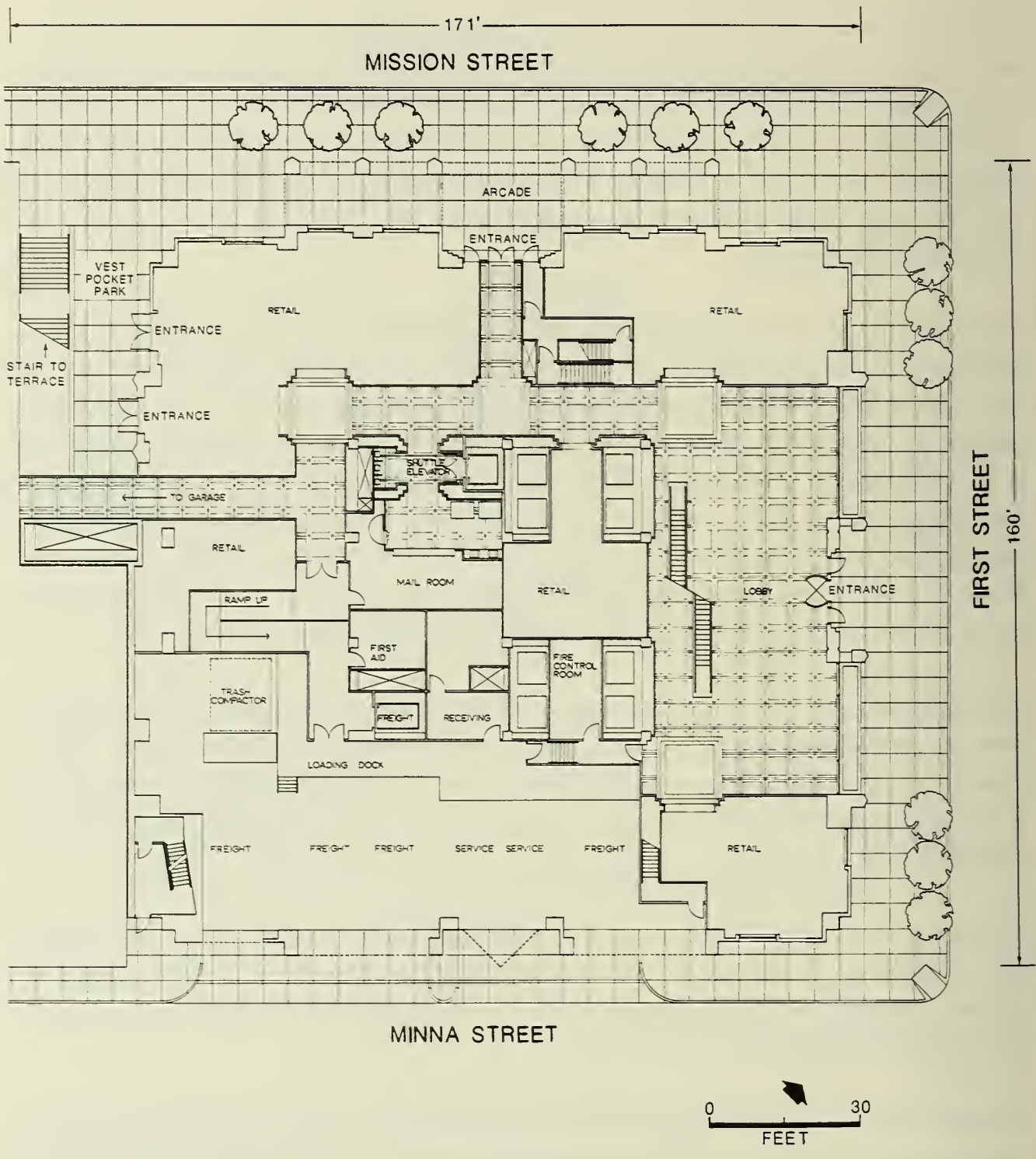


FIGURE 3:
GROUND-FLOOR PLAN
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

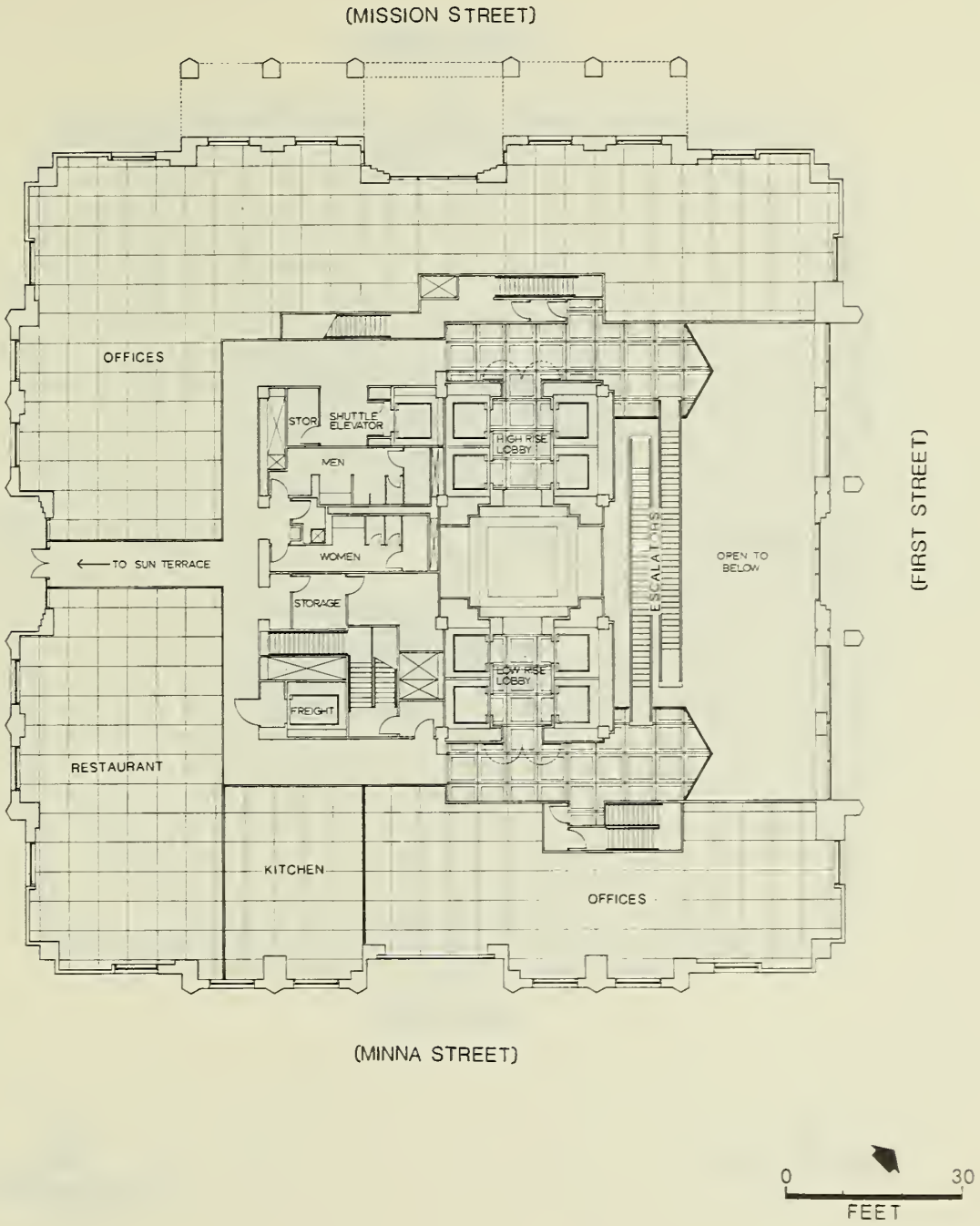


FIGURE 4:
SECOND-FLOOR MEZZANINE PLAN
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

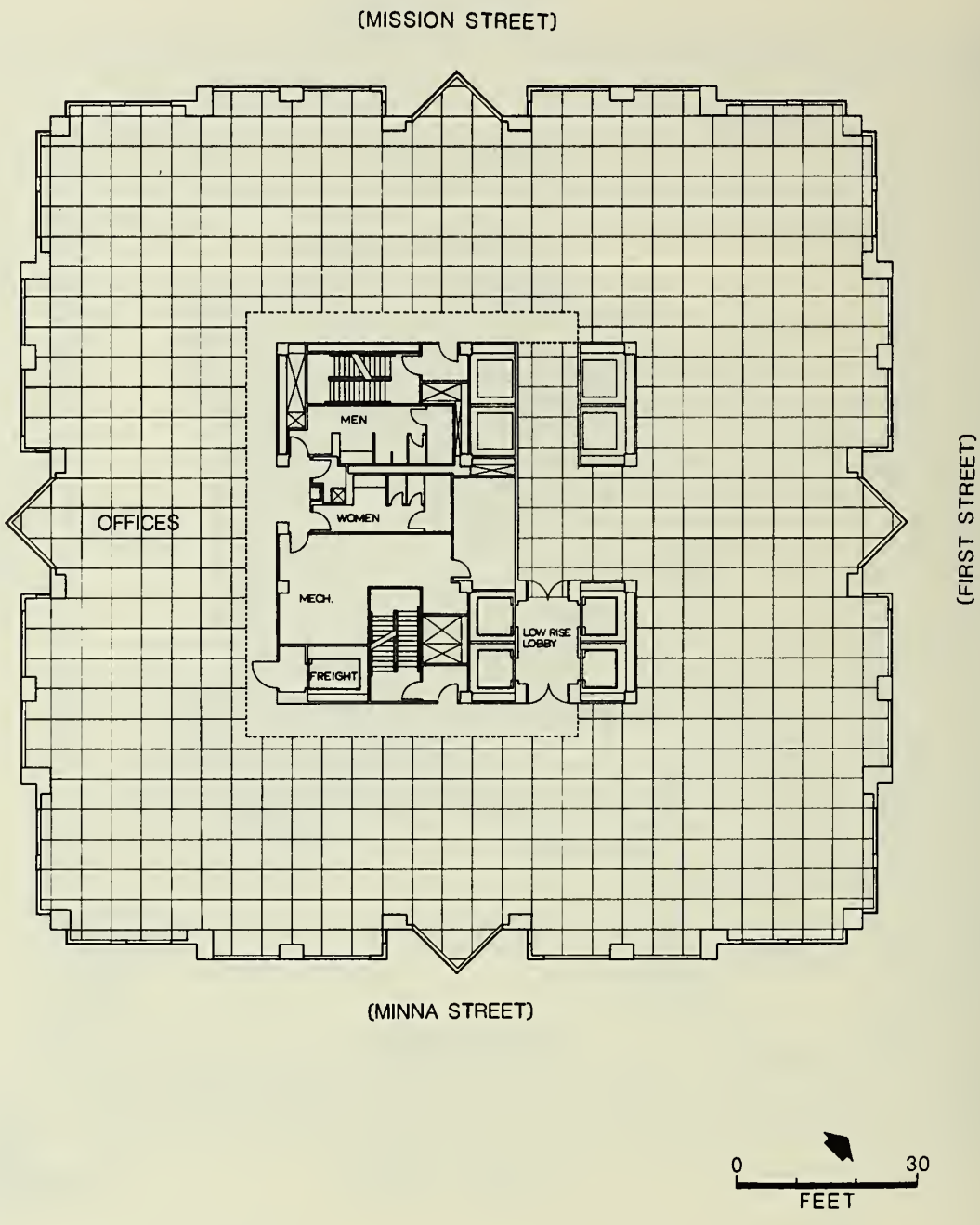


FIGURE 5:
TYPICAL LOW-RISE FLOOR PLAN
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

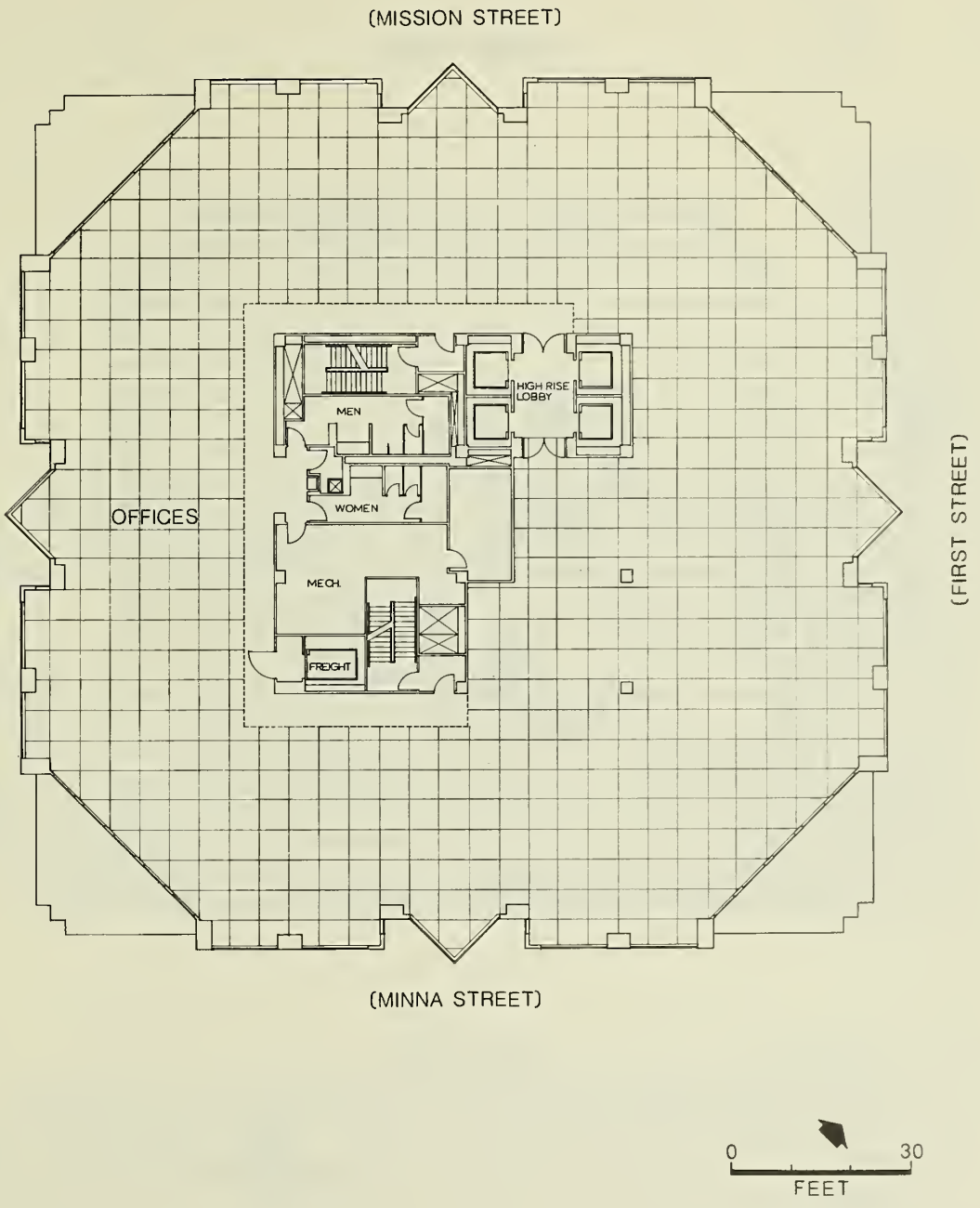


FIGURE 6:
TYPICAL HIGH-RISE FLOOR PLAN
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

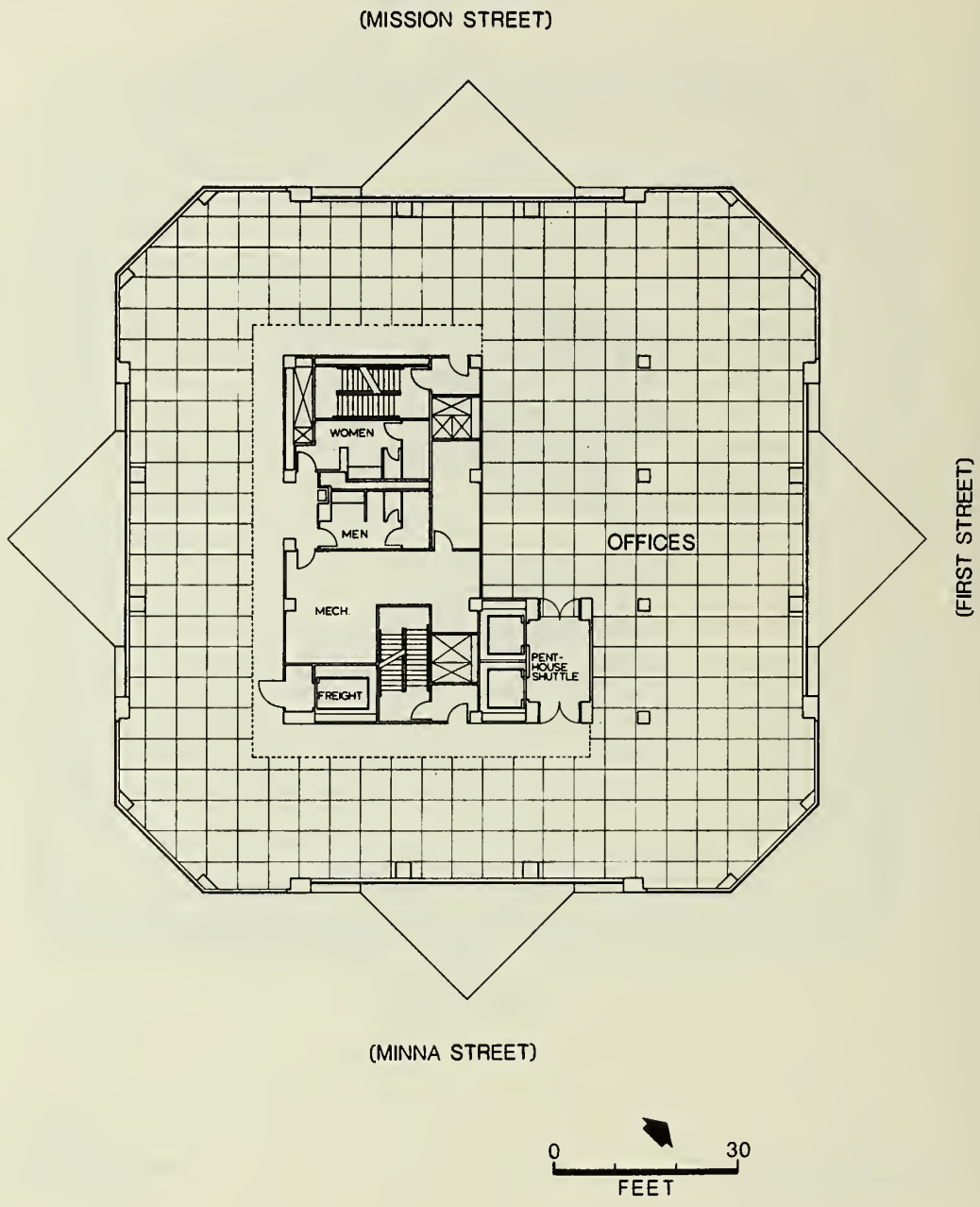
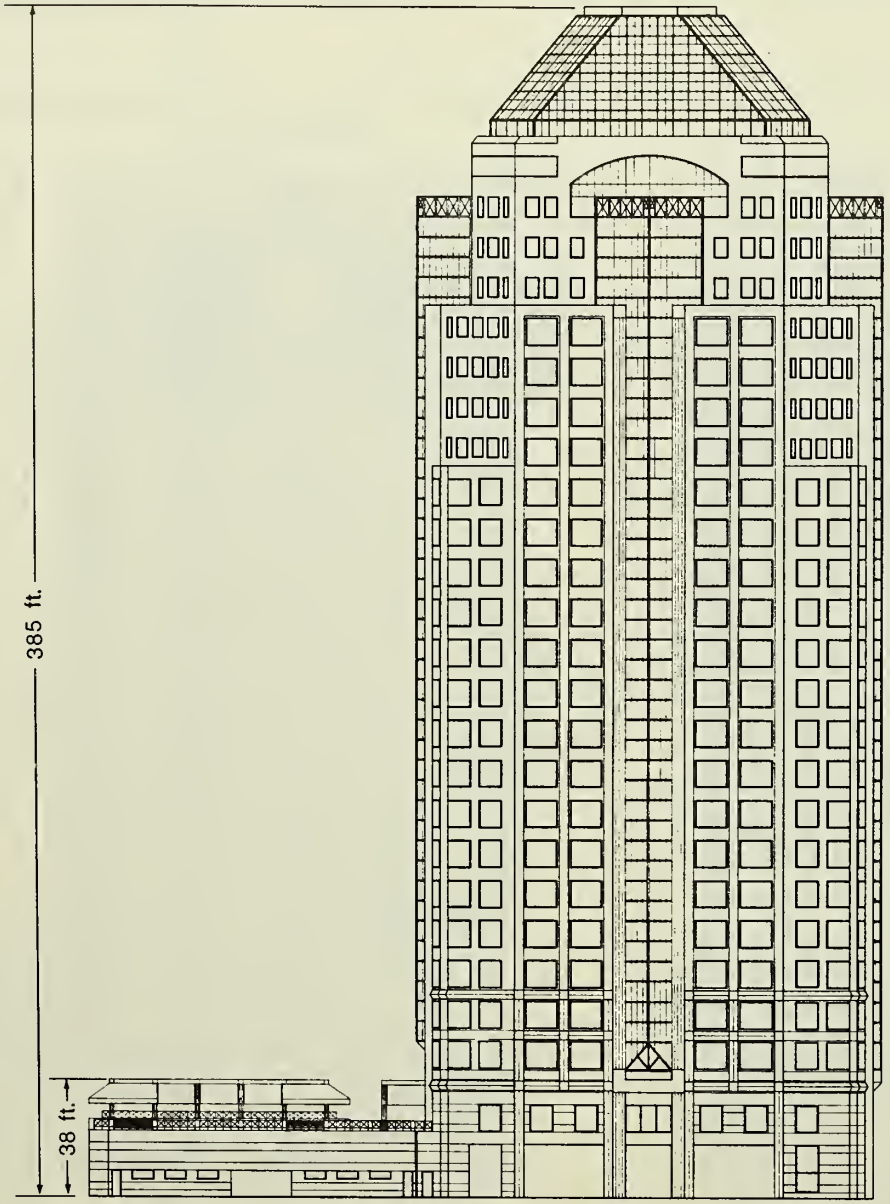


FIGURE 7:
TYPICAL UPPER-TOWER FLOOR PLAN
100 FIRST STREET

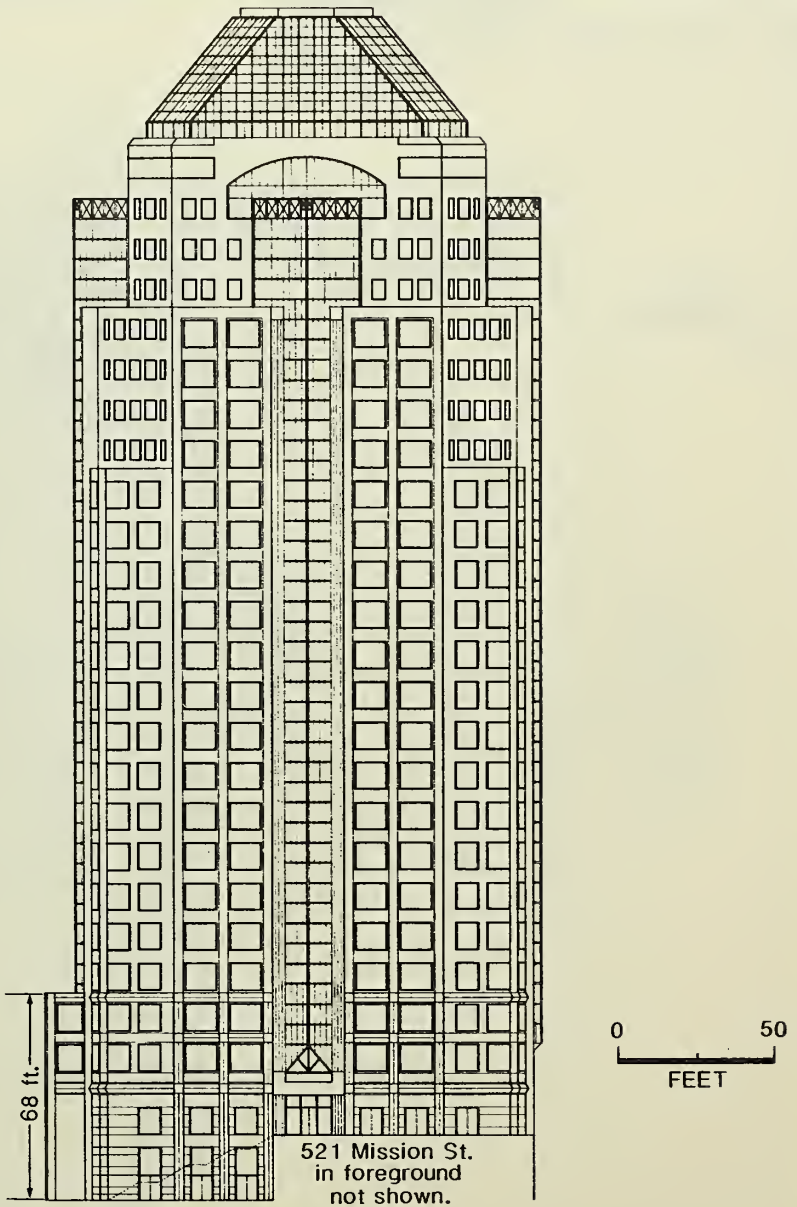
SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

FIGURE 8:
FIRST AND MISSION STREET ELEVATIONS
100 FIRST STREET



MINNA STREET



WEST ELEVATION

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

FIGURE 9:
MINNA STREET AND WEST ELEVATIONS
100 FIRST STREET

proposed vest pocket park open space. Two light-colored limestone cornices or belt courses at the third and fifth floors would define the four-story base of the building. The four-story base would extend 15 feet from the tower to the northern property line. This 68-foot-high extension of the building would contain a retail bustle which would continue the street wall along Mission Street (see Figure 21, p. 77).

The lower tower portion of the building, floors five through 21, would be set back 15 feet from the property line on Mission Street. A two-story-high pedestrian arcade would run the length of the office building portion of the site on Mission Street. The arcade would widen the sidewalk by 15 feet (seven feet of effective width). The existing garage at 521 Mission Street, which would be retained, extends out to the property line, and thus would not continue the proposed arcade. The office tower would come to the property line on Minna and First Streets. The skin of the tower would combine the same light-colored stone used on the base with light-gray glass. Centered in each of the four sides of the tower portion would be a continuous, light-gray glass bay window running the full height of the tower.

The upper tower, floors 22 through 26, would be developed as a series of setbacks in an octagonal form (see Figure 19, p. 75). Each side would be punctuated by a large fan window with metal grille work. The skin would also be the same light-colored stone with punched windows of light gray glass.

The roof would be designed as an octagonal cone truncated at the top. Its surface would be metal, articulated through a pattern of ridges and raised seams. The top portion of the roof would be capped with metal grille work.

The existing parking garage at 521 Mission Street would be renovated to meet current Building Code requirements including seismic standards. To visually extend the base of the building and architecturally integrate the garage with the new construction, the Mission and Minna Streets facades would be resurfaced with materials and colors similar to those used on the base of the office tower. Direct access from the parking garage to the first-floor lobby would be provided. A publicly accessible sun terrace, containing about 14,000 gross square feet, would be constructed on the roof of the garage (see Figure 10). The terrace would be landscaped, and contain a sculptural water element, such as a fountain, and seating for about 60 to 70 people. The height of a canopy proposed on the Mission Street side of the terrace would visually continue the lower cornice line proposed for the office tower. Food service on the terrace would be provided from the

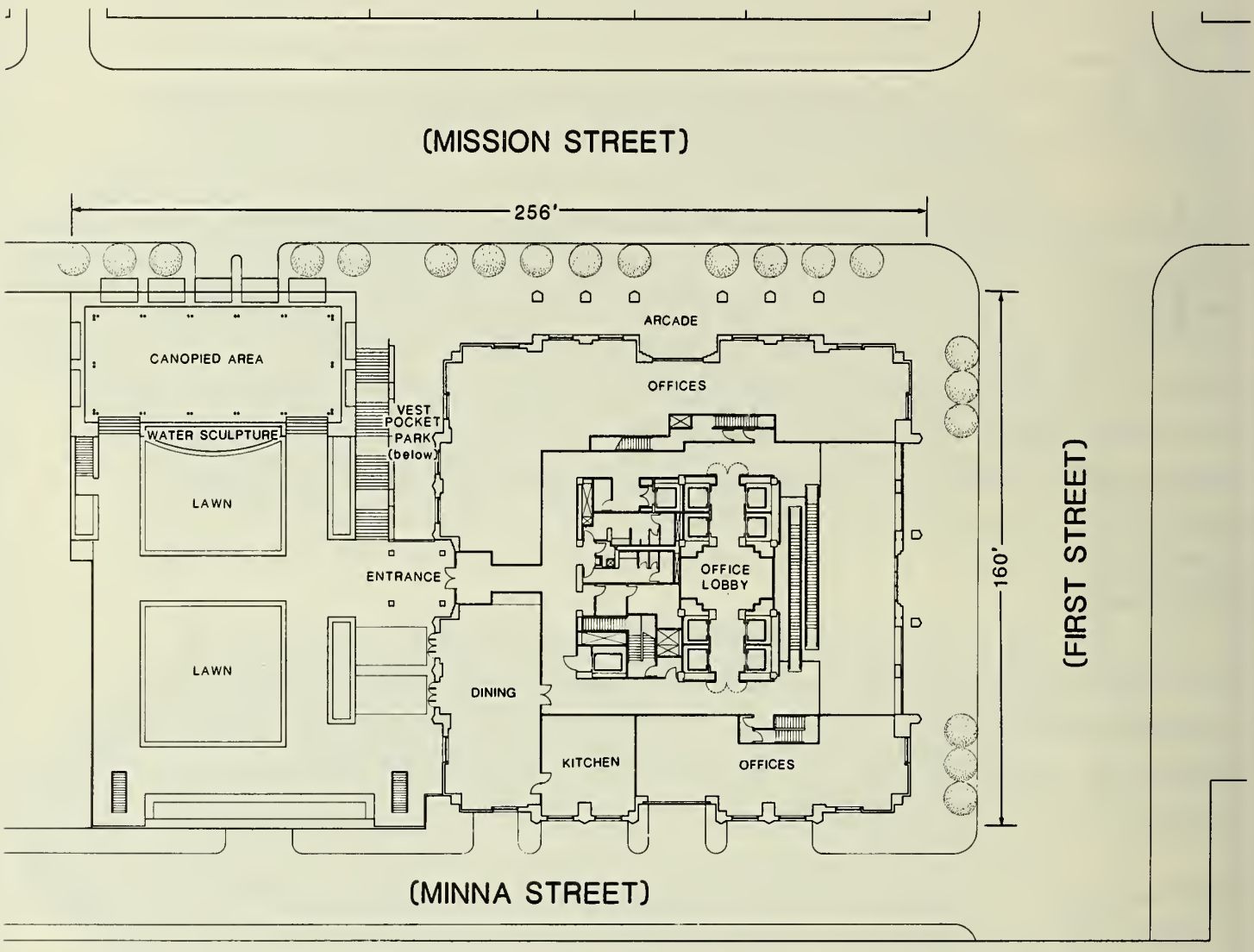


FIGURE 10:
SECOND-FLOOR SITE PLAN
SHOWING SUN TERRACE
AND RESTAURANT/OFFICE LEVEL
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

second-floor restaurant in the office tower. The terrace would have direct access to the second-floor office lobby.

D. PROJECT SCHEDULE, COST AND APPROVAL REQUIREMENTS

The project sponsor expects environmental review, project review and detailed design to be completed in early 1985. After approval and issuance of building permits, Demolition and construction would take about 21 months and the duration of each activity would be as follows/4/:

Site Demolition and Clearance	9 Weeks
Excavation	6 Weeks
Foundation Preparation	9 Weeks
Steel Erection	28 Weeks
Exterior Finishing	23 Weeks
Interior Finishing	16 Weeks

Initial occupancy would occur about 21 months (91 weeks) after the start of demolition.

COST

Estimated construction cost of the project would be about $41 million (1984 dollars), including demolition, excavation, building shell and interior improvements. Replacement cost for the entire building, including architectural and engineering fees, and tenant improvements, would be about $73 million. Ground-floor retail space is expected to rent for approximately $30 to $40 per square foot per year. Office space is expected to rent for approximately $28 to $39 per square foot per year. (Both figures are in 1984 dollars).

APPROVAL REQUIREMENTS

Following a public hearing before the City Planning Commission on the Draft EIR, responses to written and oral comments will be prepared. The EIR will be revised as appropriate and presented to the City Planning Commission for certification. No permits may be issued before the Final EIR is certified.

The Downtown Plan (the Plan) was adopted and proposed amendments to the City Planning Code to implement it (Permanent Controls) were approved by the City Planning Commission on November 29, 1984. Because the proposed amendments must be acted

on by the Board of Supervisors and signed by the Mayor, the Commission also adopted Interim Controls, which will be in effect for six months until the Board of Spervisors acts. Under the proposed amendments implementing the Downtown Plan (Section 309), the project would require exceptions to bulk and loading requirements. It would also require approval by the Zoning Administrator of transfer of development rights (Section 128). The Interim Controls do not contain the provisions of the Plan and of the Permanent Controls preserving architecturally significant buildings or permitting transfer of development rights.

Under its policy of Discretionary Review/5/ for all downtown high-rise buildings, the City Planning Commission would review the building design and its environmental context in detail, and, after a public hearing, adopt a resolution either approving, approving with conditions, or disapproving the project. The City Planning Commission would also hold a public hearing to consider the project's application for exceptions under Section 309(e). Following project approval by the City Planning Commission, the project sponsor must obtain demolition, building, and related permits from the Central Permit Bureau of the Department of Public Works. Should the exception to the Downtown Plan loading requirements be approved, the project would also need an exception to the Standard Requirements for Automobile Driveways (Order No. 62850) from the Director of Public Works. An application for a Site Permit for the project (#8308265-S) was filed with the Central Permit Bureau on September 20, 1983. Applications for demolition permits (840 9900-05) were filed on September 13, 1984.

NOTES - Project Description

/1/ Streets in the South of Market area run generally northeast-southwest and northwest-southeast. For ease of reading, northeast-southwest streets, such as Mission Street, are referred to as east-west, and northwest-southeast streets, such as First Street, are referred to as north-south. Thus, Fremont Center is east of the site on Mission Street.

/2/ City Planning Commission Resolution No. 10165, November 29, 1984. The ordinances implementing the Downtown Plan must be acted on by the Board of Supervisors and signed by the Mayor. Action is expected in early 1985.

/3/ For a discussion of project compliance with the City Planning Code (September 1979), see Chapter VII, Alternatives, D., p. 194.

/4/ Michael D. Barker, Barker Interests Limited, letter, May 25, 1984.

/5/ The policy of Discretionary Review for projects within C-3 districts and adjacent Downtown areas was established under City Planning Commission Resolution No. 8474, January 17, 1980.

III. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

LAND USE

The project site is west across First Street from the Transbay Terminal passenger unloading and open area which occupies the south side of Mission Street between Fremont and First Streets. The terminal occupies the entire block east of the site. The Terminal building itself bridges over First and Fremont Streets and is, thus, also across Minna Street from the site.

The Transbay Terminal and project area is characterized by a mix of low-rise and high-rise commercial buildings. The area to the east of First Street supports recent development of a generally higher scale and greater density than the area west of First Street. High-rise buildings approved, under construction or recently constructed in the area east of the project site include the Fremont Center (also known as Five Fremont Center), Pacific Gateway, the Federal Reserve bank, 150 Spear, 315 Howard, 124 Mission, 135 Main, and 160 Spear Street buildings.

The project site is occupied by seven, low-rise commercial buildings ranging in height from one to five stories. The two-story Terminal Drugs building is located on the corner of Mission and First Streets at 104-106 First Street / 501-507 Mission Street. The remainder of the site's First Street frontage is occupied by the following: a five-story building at 110 First Street; one-story 112 First Street; the three-story Bonestell building at 116 First Street; and four-story 118-124 First Street at Minna (see Figure 11). The Minna Street portion of the site includes the four-story 118-124 First Street / 10, 12 and 16 Minna Street building (see Figure 12, p. 31). The Terminal Drugs and two-story 511-519 Mission Street buildings, and the two-level Metropark garage at 521 Mission Street front Mission Street (see Figures 13 and 14, p. 32-33). All structures on the site are built to lot lines, and derive interior light and air from lightwells, characteristic of older development in the project area. Uses on the site include about 12,575 square feet of retail (amusement arcade, barber shop, shoe repair, drugstore, luggage retail

(All Five Buildings to be Demolished)

▲ 118-124 FIRST ST. (8-12 MINNA)

▲ 116 FIRST ST.

▲ 112 FIRST ST.

▲ 110 FIRST ST.

(PACIFIC TELEPHONE BUILDING IN BACKGROUND)

▲ 104-106 FIRST ST./ 501-507 MISSION ST.

FIGURE 11:
FIRST STREET VIEW OF
PROJECT SITE (LOOKING WEST)
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

10-16 MINNA STREET

118-124 FIRST STREET

(Building to be Demolished)

FIGURE 12:
VIEW OF PROJECT SITE ON MINNA STREET
FROM TRANSBAY TERMINAL
100 FIRST STREET

SOURCE: ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

A. 501-502 MISSION STREET (TO BE DEMOLISHED)

B. 511-519 MISSION STREET (TO BE DEMOLISHED)

C. 521 MISSION STREET (TO BE RENOVATED)

FIGURE 13:
MISSION STREET VIEWS OF PROJECT SITE
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

(PACIFIC GATEWAY IN BACKGROUND)

301 MISSION ST.

501-502 MISSION ST./ 104-106 FIRST ST.

511-519 MISSION ST.

521 MISSION ST.

FIGURE 14:
MISSION STREET VIEW OF PROJECT SITE
(LOOKING EAST)
100 FIRST STREET

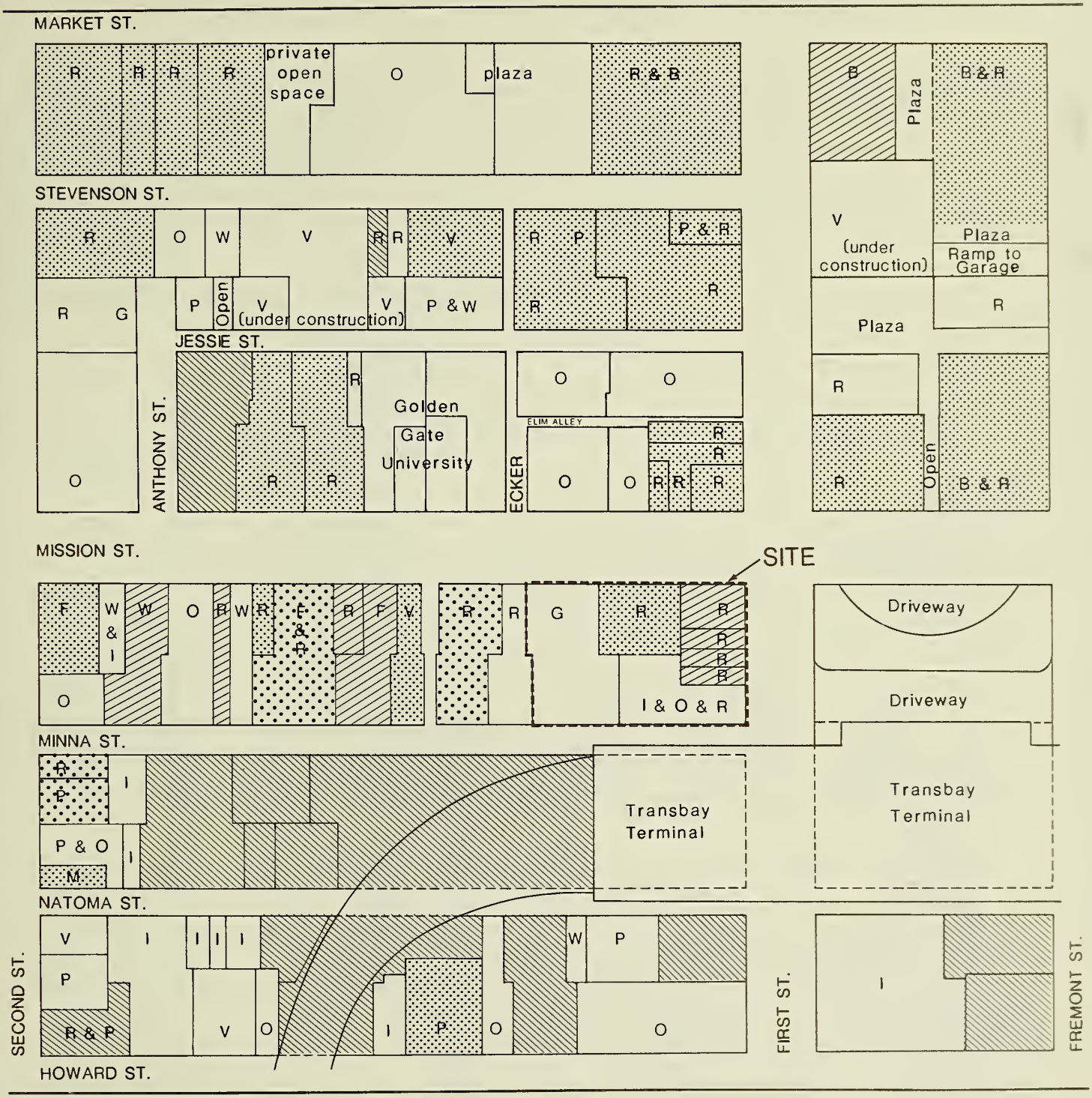
SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

and repair store), 9,125 square feet of restaurant space (three restaurants and two bars), 6,500 square feet of offices, 8,100 square feet of artist, film production and music studio space, 20,400 square feet of light-industrial space (jewelry, box and garment manufacturing), and 2,000 square feet of downtown support businesses (mail service and cleaning). About 15,125 square feet of space on the project site are vacant; most of the vacant space was formerly used for downtown support services. The 85-space parking garage has basement and ground-floor levels and an unroofed upper deck; it contains about 44,400 gross square feet. Many of the businesses on the site are currently in the process of vacating it, because their at-will tenancies have not been renewed.

Similar retail, office and service uses occupy other older buildings in the vicinity. See Figure 15 for a project area land use map. Uses across Mission Street from the site include a Merrill's drugstore, restaurant, typewriter store and several offices in buildings between two and five stories in height. Golden Gate University, at 536 Mission Street, is located across Mission Street just west of the project site. At the northeast corner of the First and Mission Streets intersection is the five-story Terminal Plaza building at 440 - 454 Mission Street, which houses a restaurant, photo shop and boutique on its ground floor, and offices on its upper floors. The recently completed Fremont Center (also known as Five Fremont Center and located at 50 Fremont Street) office building is just east of the Terminal Plaza building.

The South of Market area has become increasingly desirable as a location for office development. Many low-rise structures are present in this Use District which is zoned for high-rise development. During the 1970s some buildings in the vicinity were converted to office use and others replaced by high-rise towers including the Pacific Gas and Electric building (77 Beale Street), the Bechtel building (50 Beale Street) and the Metropolitan Life Insurance building (425 Market Street).

Located in the vicinity of the project site are the sites of 12 office buildings (including conversions), under construction or approved (see Figure 16, p. 36). In addition, three office developments are proposed within 1,000 feet of the site and are under formal environmental review by the Department of City Planning, including 524 Howard Street, 35 Hawthorne Street and 299 Second Street. An additional office development, at 535 Mission Street immediately west of the site, is currently in preliminary planning



LEGEND

GROUND-FLOOR USE

- O OFFICE
- W WHOLESALE
- R RETAIL/RESTAURANT
- P PRINTING/PHOTOGRAPHY
- F FURNITURE STORE
- B BANK
- I LIGHT INDUSTRIAL
- M MEDICAL CLINIC
- PARKING LOT
- V VACANT
- G SERVICE GARAGE

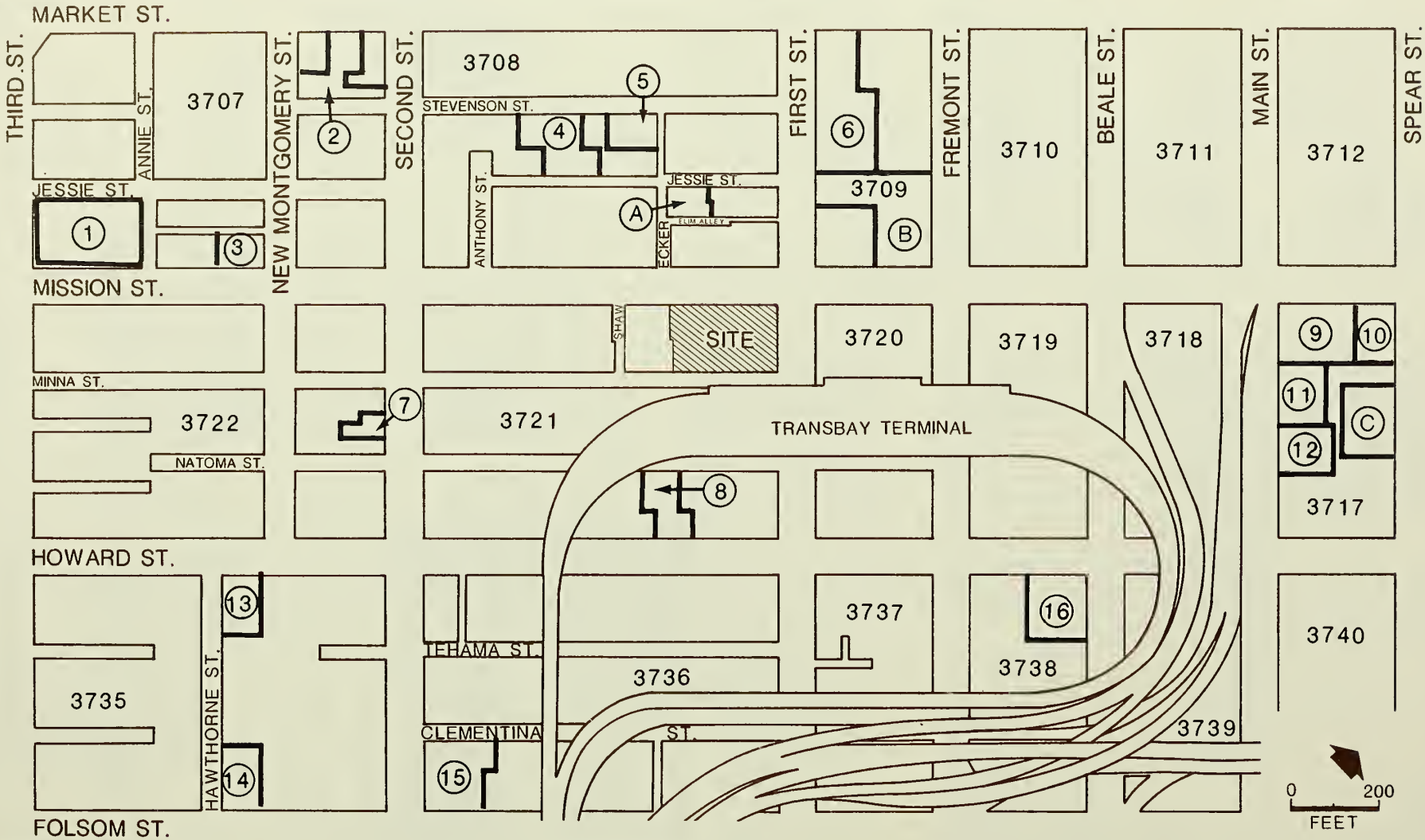
UPPER-FLOOR USE

- OFFICE ABOVE
- WHOLESALE ABOVE
- VACANT ABOVE

0 100 FEET

FIGURE 15:
LAND USE
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.



LEGEND:

(1) YBC OFFICE (SFRA)	(UNDER REVIEW)	(9) 123 MISSION	(UNDER CONSTRUCTION)	CONSTRUCTION COMPLETED BUT NOT FULLY OCCUPIED			
(2) NEW MONTGOMERY PLACE	(UNDER CONSTRUCTION)	(10) 100 SPEAR/101 MISSION	(UNDER CONSTRUCTION)				
(3) 90 NEW MONTGOMERY	(UNDER CONSTRUCTION)	(11) 135 MAIN	(UNDER CONSTRUCTION)	(A) ECKER SQUARE			
(4) 71 STEVENSON	(UNDER CONSTRUCTION)	(12) 160 SPEAR	(UNDER CONSTRUCTION)	(B) FREMONT CENTER			
(5) 49 STEVENSON	(APPROVED)	(13) 35 HAWTHORNE	(UNDER REVIEW)	(C) 150 SPEAR			
(6) CENTRAL PLAZA	(UNDER CONSTRUCTION)	(14) 75-95 HAWTHORNE	(APPROVED)				
(7) 144 SECOND	(UNDER CONSTRUCTION)	(15) 299 SECOND	(UNDER REVIEW)				
(8) 524 HOWARD	(UNDER REVIEW)	(16) 315 HOWARD	(APPROVED)				

FIGURE 16:
OFFICE DEVELOPMENT
IN THE PROJECT AREA
100 FIRST STREET

SOURCE: ESA and DEPARTMENT OF CITY PLANNING LIST (MARCH 10, 1984)

stages. No Preliminary Draft EIR on this proposal has been submitted to the Department of City Planning for review. The Lincoln Plaza office project at 562 Mission Street (81.297ED) has been withdrawn by the sponsor. Therefore, although it is included in the March 10, 1984 list of cumulative Office Development in Downtown San Francisco (see Appendix C, Table C-3, pp. A-35 - A-38), it is not discussed further in this EIR.

Downtown San Francisco and the Bay Area Region

In 1984, it was estimated that the C-3 District contained about 103.5 million gross square feet of building space over all land uses. About 60% of this space was office space. The next largest share was hotel space at ten percent of the total, followed by retail at eight percent./1/

The Department of City Planning has compiled data on major office building construction citywide since 1960 (see Table C-1 in Appendix C, p. A-29). According to the City's data, in 1983 there were 64.3 million gross square feet of space in major office buildings throughout the City. Most of this office space is in the C-3 District. Between 1960 and 1979, office space was built at an average rate of 1.4 million gross square feet per year. Recently, office construction activity has risen to higher levels. The data complied by the Department of City Planning show 12.2 million gross square feet built from 1980 through 1983, for an average rate of about 3.0 million gross square feet per year.

Downtown San Francisco is likely to continue to be the major office center in the Bay Area. Forecasts of development between 1984 and 2000 prepared for the Downtown Plan EIR estimate that an additional 21.7 million gross square feet of space in all uses would be built and occupied in the C-3 District. Most of this additional space (16.8 million gross square feet, almost 80 percent of the total) would be office space. According to the Downtown Plan forecasts, the rate of new office construction in the C-3 District would average about 1.1 million gross square feet per year between 1984 and 2000./2/

These forecasts of development for the Downtown Plan fall near the lower end of the range identified for the five Alternatives to the proposed Plan. The total addition of space built and occupied beteen 1984 and 2000 would range from 21.3 million gross square feet (Alternative 5) to 29.9 million gross square feet (Alternative 2). In all Alternatives, office space would represent the largest component of development. The smallest

increase in office space would occur under Alternative 4 (15.4 million gross square feet), while the largest increase would occur under Alternative 1 (24.4 million gross square feet)./3/ Under Alternative 1, the rate of new office construction forecast between 1984 and 2000 would continue at the relatively high level of 1.7 million gross square feet per year./4/

The Department of City Planning maintains a list of cumulative office development in downtown San Francisco (see Table C-3 and Appendix C text for a more detailed description of the contents of the list, p. A-31). The list incorporates all office and major retail projects that are under formal review, approved but not yet under construction, and under construction in the greater downtown area. This area covers the C-3 District in addition to adjacent areas, such as the Northern Waterfront, Civic Center, and the area south of Folsom Street. As of the March 10, 1984 list, about 9.2 million gross square feet were under formal review, about 5.0 million gross square feet were approved, and about 5.7 million gross square feet were under construction. In total, the list includes a net addition of about 19.9 million gross square feet: 19.0 million gross square feet of office space and 0.9 million gross square feet of retail space. The information on the list for the net addition of space accounts for about 2.7 million gross square feet of existing office retail space that would be demolished for construction of these projects. About 13 million gross square feet of the 19.9 million gross square feet total are in projects located in the C-3 District.

In terms of land use, the most important factor in the regional consideration of cumulative development in downtown San Francisco is region-wide office development. Other land uses throughout the region, such as retail and hotel, are less affected by development in San Francisco. The office space market is more regional in nature.

Space in office buildings in the other eight counties of the nine-county Bay Area is estimated to be 27 million square feet as of the end of 1979./5/ While San Francisco has the majority of existing office space in the region, the rapid growth of office functions in other Bay Area counties has resulted in less than half of the new space in office buildings in the region being built in San Francisco. Forty-five percent of the dollar value of building permits issued for office construction in the region between 1972 and 1979 was for San Francisco development./6/ Because the average cost per square foot for office construction is higher in San Francisco due to the predominance of high-rise office construction, the City's recent share, in terms of square footage of regional office space construction, can be inferred to be less than 45%.

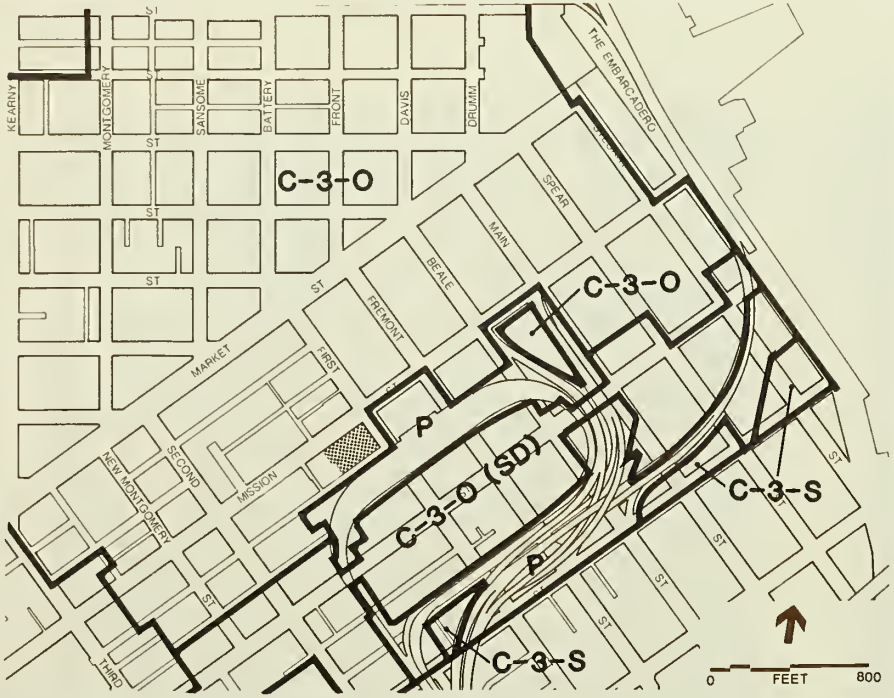
San Francisco's role as a headquarters city and major business center for the West Coast stimulates office growth elsewhere in the Bay Area. As San Francisco firms expand, they look to suburban office markets to accommodate new functions and/or to attract a certain segment of the labor force. Moveover, as the costs of space in San Francisco has increased, due to high levels of demand, cost-sensitive firms have chosen locations in other cities or in expanding suburban locations.

ZONING

The project site is evaluated below in the context of the Downtown Plan (the Plan). An EIR prepared for the Downtown Plan was certified on October 18, 1984. The Downtown Plan and related amendments to the San Francisco Comprehensive Plan were approved and adopted by the City Planning Commision on November 29, 1984. On that date, the Commission adopted Interim Controls and approved Permanent Controls, composed of amendments to the ordinances of the Planning Code, to implement the Plan. The Commission recommended to the Board of Supervisors that it adopt the proposed amendments to the Code (Permanent Controls)/7/

The site is in the C-3-0 (Downtown Office) district (see Figure 17). Office and retail uses are primary uses in this zoning district. Development is permitted with a basic Floor Area Ratio (FAR) of 10:1.

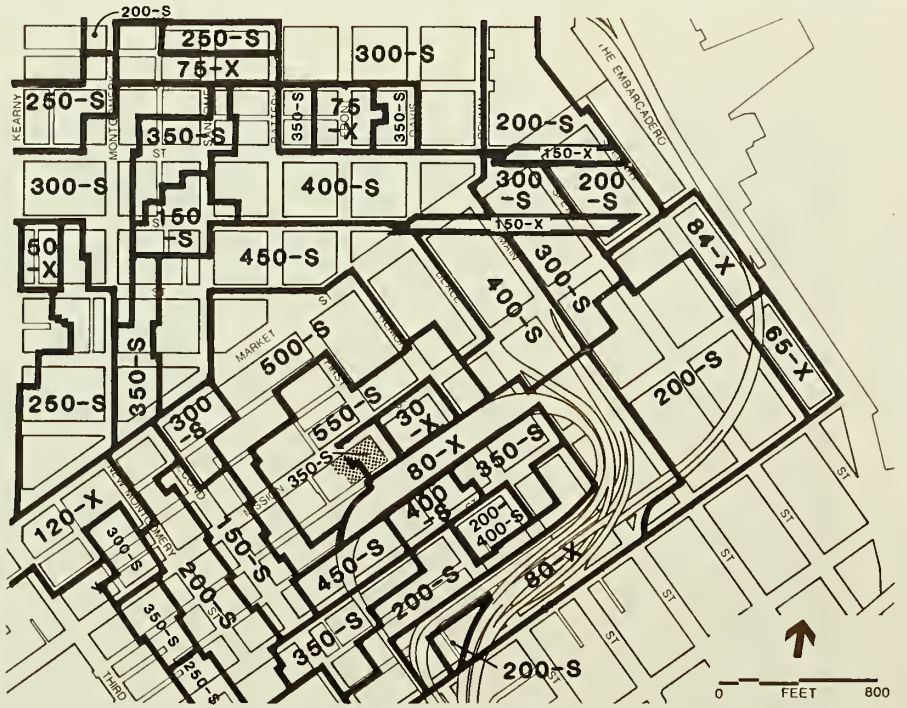
Under the Downtown Plan, the eastern portion of the site is in a 350-S Height and Bulk District, in which the allowable height is 350 feet. The western portion of the site containing the parking garage (Lot 84) is in a 550-S Downtown Plan Height and Bulk district, in which the allowable height is 550 feet (see Figure 18). In the S Bulk District, the maximum permitted diagonal dimension would be 200 feet for the lower tower of a high-rise building, and 160 feet for the upper tower. (For a detailed discussion of Downtown Plan Height and Bulk controls on the project site, see Chapter IV., Impacts, A., pp. 62 - 67, and Table 4, p. 63.) The Downtown Plan includes bulk controls requiring mandatory volume reduction at upper floors. The maximum permitted length for the lower and upper portion of the tower would be 160 feet and 140 feet, respectively. Ten percent of permitted building height is allowed above the height limit in exchange for further reduction in the volume of the upper portion of the tower. Thus, in the 350-S District, for example, the maximum allowable height is 385 feet.



LEGEND

C-3-O	DOWNTOWN OFFICE DISTRICT
C-3-O (SD)	DOWNTOWN OFFICE SPECIAL DISTRICT
C-3-S	DOWNTOWN SUPPORT DISTRICT
P	PUBLIC USE DISTRICT
	SITE

FIGURE 17:
DOWNTOWN PLAN USE DISTRICTS
100 FIRST STREET



LEGEND

NUMBERS INDICATE MAXIMUM BUILDING HEIGHT.

IN 'S' BULK DISTRICTS, HEIGHT MAY BE INCREASED BY UP TO 10%.

LETTERS INDICATE BULK DISTRICTS.

S - MANDATORY VOLUME REDUCTION AT UPPER FLOORS (SEE TEXT FOR FULL DISCUSSION)

X - BULK LIMITS NOT APPLICABLE

SITE

FIGURE 18:
DOWNTOWN PLAN HEIGHT AND BULK DISTRICTS
100 FIRST STREET

SOURCE
AMENDMENTS TO THE CITY PLANNING CODE,
EXHIBITS A AND B (NOVEMBER 1984)

Off-street parking is not required for commercial uses in the C-3-O district, and is discouraged. According to Section 204.5(c) of the Planning Code as amended by the Downtown Plan, up to seven percent of the gross floor area of a building may be devoted to parking as an accessory use when no parking is required. Section 152, Table 5, of the amendments to the Code provides a schedule of off-street loading requirements (see Table 4, p. 67).

Many low-rise buildings are present in this district, which is zoned for high-rise development. The Downtown Plan has reduced the basic FAR for the C-3 District from 14:1 to 10:1, and the former 500-foot height limit for most of the site has been reduced to 350 feet. At the same time, the Downtown Plan encourages some intensification of use in the project area. Lot 84 on the site now falls within a higher, 550-foot height district. Additional floor area, beyond the basic FAR but within the height and bulk controls, could be achieved through the transfer of development rights (TDR) to the project site from significant and contributory buildings in the same C-3 District; the use of TDR is limited by the provisions of the proposed ordinances governing approval of projects, including any limitation imposed by Section 309, Permit Review in the C-3 Districts.

NOTES - Land Use and Zoning

/1/ San Francisco Downtown Department of City Planning, Downtown Plan EIR (EE 81.3), certified October 18, 1984, p. IV.B.17. The estimates of C-3 District building space for 1984 are based on 1981/82 data for the C-3 District collected for the Downtown Plan analysis. The Downtown EIR Land Use inventory was conducted to provide a base case from which the land use impacts of the Downtown Plan and Alternatives could be analyzed. The inventory data on C-3 District space by use and subarea are presented in Table IV.B.1, on p. IV.B.2 of the Downtown Plan EIR. The estimates of land use change between 1981 and 1984 primarily reflect the projects under construction in the C-3 District as of mid-1982 and are presented on pp. IV.B.14 to IV.B.16 of the Downtown Plan EIR. The text discusses the real estate market context for these short-term projections of land use change. It indicates that the amount of office space under construction exceeded the projected demand estimated according to longer-term employment growth forecasts prepared for the Downtown Plan analysis. Therefore, some of the space assumed to be built by 1984 (and included in the 1984 totals identified herein) would be absorbed later in the 1980s. These sections of the Downtown Plan EIR are hereby incorporated by reference pursuant to State CEQA Guidelines Section 15150. The C-3 District Land Use Inventory is available for public review at the Deparment of City Planning.

/2/ Ibid., pp. IV.B.34-35. This estimate accounts for new construction, as well as demolition and conversion of existing space.

The forecasts presented in this paragraph and the following paragraph for the Alternatives represent space that would be built and absorbed by 2000. Space that will be under construction and not yet occupied in 2000 is not included in the forecasts

for 2000 for the Downtown Plan and Alternatives. Therefore, the annual average data from the forecasts are not directly comparable to annual averages for recent short-term (1980-83) office construction, as shown on the list compiled by the Department of City Planning. The short-term data include some projects that are not yet fully occupied.

/3/ Ibid., p. VII.B.4 and accompanying text.

/4/ Ibid., p. VII.B.2 and accompanying text.

/5/ Association of Bay Area Governments (ABAG), "Bay Area Office Growth," Berkeley, California, April 1981, pp. 31-62. This number may be an underestimate because the sources for the report apparent do not always include small office buildings.

/6/ Ibid., p. 18.

/7/ The San Francisco City Planning Code (September 1979), without the proposed amendments implementing the Downtown Plan, classifies the site as C-3-O (Downtown Office) district, which allows office and retail as primary uses. The basic FAR allowable on the site under the Code is 14:1. Under the 1979 Code, the site is in a 500-I Height and Bulk district, which restricts height to 500 feet, maximum facade width above 150 feet to 170 feet and maximum horizontal diagonal dimension above 150 feet to 200 feet.

B. HISTORIC AND ARCHITECTURAL RESOURCES

The site, at the corner of First and Mission Streets just inland of the 1849 shoreline at Yerba Buena Cove, is in what was the City's first industrial area. The depression along Mission Street between the sand hills of Market and Howard Streets was known as Happy Valley for its mild weather. Before the construction of the Transbay Terminal, the area contained warehouse and light-industrial uses, as well as other support businesses for the nearby downtown.

Opened to interurban transit traffic in 1939, the Terminal diverted East Bay pedestrian and transit traffic originating in the Financial District from lower Market Street and the Ferry building to First and Fremont Streets. This resulted in a general conversion of street-level space in what were predominantly loft buildings - both on the surrounding streets and in the greater vicinity - to commuter-oriented retail uses.

The project site is occupied by seven, one to five-story structures built between 1906 and 1943. They are listed in Table 2 in order of date of construction. Their individual architectural characteristics are discussed in Chapter IV., Impacts, B., pp. 68 - 69. Four of the buildings are rated "C" by the Foundation for San Francisco's Architectural

TABLE 2: ARCHITECTURAL RATINGS OF THE BUILDINGS ON THE SITE/a/

Building	Construction Date	Number of Stories	Heritage Rating/b/	DCP Survey Rating/c/
511-519 Mission Street Lot 87)	1906	2	C	Not rated
118-124 First Street (at Minna) Lot 5)	1907	4	C	Not rated
116 First Street Lot 4)	1921	3	C	Not rated
110 First Street Lot 2)	1922	5	C	Not rated
104-106 First Street (501-507 Mission Street) Lot 1)	1938	2	Not rated	Not rated
112 First Street Lot 3)	1943	1	Not rated	Not rated
521 Mission Street Lot 84)	1952	2/d/	Not rated	Not rated

/a/ For pictures of the buildings on the site, see Figures 11-14, pp. 30-33.
/b/ Foundation for San Francisco's Architectural Heritage, Splendid Survivors, 1979.
/c/ San Francisco Department of City Planning, Survey of Architecturally Significant Buildings, 1976.
/d/ Upper level is unroofed parking.

SOURCE: Environmental Science Associates, Inc.

Heritage (Heritage) in its Splendid Survivors, for contextual importance. No building on the site is rated in the Department of City Planning's 1976 architectural survey or included in the City's List of Architecturally and/or Historically Important Buildings on the Downtown. (For a description of the surveys, list, and rating systems, see Appendix B, p. A-27.) None of the buildings on the site is listed as a Significant Building (Categories I and II) or a Contributory Building (Categories III and IV) in the Downtown Plan. The site is outside a Conservation District that is about 400 feet to the west near Second and Mission Streets.

The buildings on the site are of the same scale as the larger grouping of older, two- to five-story buildings along both sides of Mission Street west of First Street. A number of these buildings to the west are rated "C". Five out of six buildings directly north of the site, in the area bounded by Mission, First and Ecker Streets and Elim Alley, are rated "C" by Heritage. The five-story, "B"-rated Terminal Plaza building, is at 440-454 Mission Street, directly northeast across First and Mission Streets. The Transbay Terminal, built in 1939, and also rated "B" by Heritage, is described by Heritage as an 870-foot-long flat slab with a 230-foot-long central pavillion. In composition, this building is an enframed pavillion with end bays, wings, and a base. It is clad in granite and includes seven, large, two-story windows.

C. URBAN DESIGN AND VISUAL QUALITY

DESIGN

The 40,500-square-foot site is covered by seven buildings, a group of low-rise buildings typical of older South of Market development. These site buildings are either loft-style structures with moorish facade detailing or commercial brick structures. Although there is little architectural continuity among buildings on the site, the pattern of building heights and styles is typical of the area and creates much of its character (see Figures 11, 12, 13 and 14, pp. 30 - 33, for views of the site).

The project block, bounded by Mission, First, Howard and Second Streets, contains a variety of small- and medium-scaled buildings. The design and proportions of buildings in the greater area are irregular, consisting of a mix of architectural styles: generally Renaissance/Baroque, Gothic and Modern./1/ They stand as independent structures.

High-rise towers constructed in the area in the past 25 years tend to stand out as contrasting structures among older buildings, which generally share a greater harmony of scale and mass. The north side of Mission Street, between First and Second Streets, presents a grouping of five- to eight-story structures of similar mass. The view on Mission Street east of First Street is of irregularly spaced high-rise buildings.

Owing to the variety of architectural styles in the site vicinity, exterior building textures and door and window treatments vary greatly. Building heights range from one to 42 stories. Large high-rise office structures are located east of the project site along Mission Street and on Market Street to the north. They include the 42-story Fremont Center, the 23-story Bechtel building at 50 Beale Street, and 33-story Pacific Gateway between Main and Beale Streets (see Figure 16, p. 36). The area south and west of the site contains low- to moderate-scale structures typical of the South of Market area. Older buildings generally have ground-floor retail uses. The project block is situated in an area where lower-scale development of older South-of-Market meets high-rise development of the northern part of that district. It is visually a transitional area.

The Transbay Terminal and its open and passenger unloading areas are located across First Street east of the site. The passenger unloading area in front of the building is one of relatively few large open spaces in the area. It consists of small, hedged, landscaped areas between driveways designated for bus and taxi loading between the Terminal and Mission Street. The horizontal mass of the Terminal building dominates the open and passenger unloading area. The space serves primarily as a corridor of pedestrian and vehicular movement between the Terminal building and the surrounding city.

VISUAL QUALITY

Views north and east from the site are dominated by newer high-rise buildings, including the Tishman building, Pacific Gateway and 100 Spear Street. The Shell building, at Bush and Battery Streets, terminates the view north up First Street. Views west from the site are characterized by three- to five-story retail and office buildings. The wing of the Transbay Terminal bridging First Street blocks views south from the site. Long-range views of San Francisco Bay or other recognized landmarks are not available from existing buildings on the site. The most comprehensive view of the project site is available from across the Terminal unloading area; the site buildings are seen against the larger Pacific Telephone building in the background (see Figure 11, p. 30). The low-rise buildings on the site are not visible from Twin Peaks on the west because of intervening taller structures. The site is partly visible from long-range viewpoints to the south, such as Potrero Hill. The existing low-rise structures are generally not visible from the north or locations beyond the buildings and streets in the immediate project vicinity.

NOTE - Urban Design

/1/ Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Books, San Francisco, 1979.

D. SHADOW AND WIND

SHADOW

Existing buildings on the site cast shadows on streets and sidewalks in the project vicinity. Portions of First and Mission Streets within one block of the project site are shaded at different times of day and seasons of the year. Existing and project shadow patterns for various times of the day and year are discussed in detail in Chapter IV., Impacts, D., pp. 82-88. The Downtown Plan (Section 147 of the proposed ordinances) states that any new development should be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site in question, to reduce substantial shadow impacts on public plazas and publicly accessible spaces. Factors to be taken into account in the determination of shadow impacts include: the amount of open area shadowed, the duration of the shadow, and the importance of sunlight to the utility of the type of open space being shadowed.

WIND

Wind conditions in San Francisco partially determine pedestrian comfort on sidewalks and in other public areas. In downtown areas, high-rise buildings can redirect wind flows around the buildings and divert winds downward to street level; each can result in increased wind speed and turbulence.

U.S. Weather Bureau and Bay Area Air Quality Management District data show that westerly (i.e., from the west), southwesterly, and northwesterly winds are the most frequent and strongest winds during all seasons in San Francisco./1/ On an aggregate basis, west winds blow approximately 51% of the time. West winds are also the strongest, averaging about seven miles per hour (mph), eight mph about nineteen percent of the time and exceeding 12 mph six percent of the time.

Southwesterly winds are typically the second most frequent (about 14% of the time) and the second strongest winds, averaging seven mph and exceeding eight mph about

five percent of the time and 12 mph about two percent of the time. Northwesterly winds have had the second highest average speed during some years, though they generally occur six to eight percent of the time, averaging five mph, and exceeding eight mph less than one-half percent of the time and rarely exceeding 12 mph.

Average wind speeds are highest during summer and lowest during winter months. However, the strongest peak winds occur during the winter, when average speeds of 27 mph or more for one hour have been recorded. The highest average wind speeds are in the mid-afternoon, and the lowest are in the early morning. Peak wind speeds are distributed evenly throughout the day.

Surface wind speeds in the vicinity of the site, for northwest, west and southwest wind directions, are all below 11 miles per hour (mph), with the majority less than six mph. The highest wind speeds of approximately ten mph occur at the intersection of Mission and First Streets during southwesterly winds. Wind speeds on the unloading area in front of the Terminal do not exceed about eight mph. (see Appendix E, pp. A-49). Existing and project-generated winds are discussed in greater detail in IV., Impacts, D., on pp. 91-95.

NOTE - Shadow and Wind

/1/ The U.S. Weather Bureau data were collected from 1891 to 1930 at 465 California Street. The Bay Area Air Quality Management District data were collected in the mid-1970s at 939 Ellis Street, near Van Ness Avenue, about two miles southwest of the site. (The BAAQMD station is now at 900 23rd. Street.)

E. TRANSPORTATION, CIRCULATION AND PARKING

The site is served by local streets and by portions of the regional freeway system (see Figure 1, p. 13). Access to the freeway connecting with the East Bay via the Bay Bridge is provided by ramps at First and Harrison Streets (about 2,000 feet south of the site) and at Mission and Beale Streets (about 800 feet east of the site). Access to the freeway connecting with the Peninsula and the San Francisco International Airport is provided by ramps at Mission and Beale Streets and Harrison and Fourth Streets (about one-half mile southwest of the site). Access from the freeway system to the project site is provided by off-ramps at Fremont and Howard Streets (about 2,100 feet south east of the site) and at Mission and Main Streets (about 1,800 feet east of the site).

The site is within the Downtown Core automobile control area designated in the Downtown Transportation Plan of the Transportation Element of the San Francisco Master Plan./1/ The Plan proposes reducing the number of private commuter vehicles and excess automobile traffic in the Downtown Core, and discourages the addition of new long-term parking spaces in and around downtown.

In the vicinity of the project site, Mission, First, Fremont, Market and Howard Streets are designated as Transit Preferential Streets on which priority is given to transit vehicles over autos during commute and business hours on weekdays./1/ Howard and Folsom Streets are designated as Primary Vehicular Streets, which the Master Plan defines as "major routes for automobile and truck movements into and out of the Downtown area." Minna Street is designated a Pedestrian/Service Street in the Master Plan and Downtown Plan; the Master Plan states that such streets, "because of service needs, cannot be for exclusive pedestrian use . . . but through design can be made into pleasant pedestrian spaces." Mission Street is two-way and carries four lanes of traffic; the outer lanes are exclusive transit (diamond) lanes, restricted to transit vehicles and autos making right turns, between 7:00 a.m. and 6:00 p.m. First Street is one-way southbound carrying four lanes of traffic; the east lane is a diamond lane and is used as primary transit access to the Transbay Transit Terminal. The diamond lane currently operates from Market Street to the Transbay Transit Terminal; however, it has been approved for extension to Howard Street./2/

The site is served by San Francisco Municipal Railway (Muni) electric trolley and motor coach lines, providing radial service to and from the downtown area. Muni bus lines operate on Mission and First Streets fronting the project site. There is a bus stop located on the First Street frontage of the project site. The City plans to move this stop to a loading island that is nearing completion in the middle of First Street between Minna and Natoma Streets./3/ Muni Metro light-rail vehicle lines are accessible via the Montgomery Street Station located two blocks northwest of the project site on Market Street. Muni and Bay Area Rapid Transit District (BART) routes in the project vicinity are shown on Figure 29, p. 100. Table 8, p. 113, shows existing p.m. peak-hour and p.m. peak-period conditions on the Muni and other transit systems.

Regional transit service to the site is provided to and from the East Bay by BART at the Montgomery Street Station on Market Street, and by AC Transit motor coaches at the Transbay Terminal, directly across First Street from the site.

Service to the Peninsula is provided by CalTrans through a service contract with the Southern Pacific Transportation Company (SPRR) from a train terminal at Fourth and Townsend Streets; by the San Mateo County Transit District (SamTrans) from bus routes and stops along Mission Street (the closest to the site is in front of the Terminal); and by BART, which provides transfers to SamTrans routes at the Daly City BART Station. In addition, independently owned and operated jitneys provide service along the entire length of Mission Street (from The Embacadero to Daly City) during a.m. and p.m. commute hours.

The Golden Gate Bridge, Highway and Transportation District (Golden Gate Transit) provides a.m. and p.m. peak-period bus service to Marin and Sonoma Counties from boarding stops along Howard Street, at the Transbay Terminal, and along Sansome Street. Discharge stops are located along Folsom Street, at the Transbay Terminal, and along Battery Street. Golden Gate Transit provides ferry service to terminals in Larkspur and Sausalito from the Ferry building, about 2,500 feet east of the site.

Golden Gate Transit also operates a vanpool and club (subscription) bus program to areas not served by fixed routes. The RIDES carpool program, operating as a nonprofit, publicly funded corporation, provides consulting and matching services to help establish Bay Area carpools and vanpools. There are about 600 carpools on the Golden Gate Bridge during the a.m. peak hour, carrying about 2,200 people daily (average occupancy of 3.6 persons per carpool vehicle)./4/ The Bay Bridge has about 2,700 carpools during the a.m. peak hour, carrying about 10,500 people daily (an average occupancy of 3.9 persons per carpool vehicle)./5/

Pedestrian activity around the site during the peak periods of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. is directed primarily to and from transit and parking facilities. Peak afternoon pedestrian flows are generally more intense than those of the morning period. Noon-hour flows are similar to the afternoon flows and are directed primarily to restaurants and retail stores within the downtown area.

Sidewalk widths on First and Mission Streets in front of the project site are restricted by trash cans, newsstands, fire hydrants and poles. The effective clear width of the Mission Street sidewalk is 9.5 feet, about 63% of the full width of 15 feet. The effective clear width of the First Street sidewalk is 9.75 feet, about 65% of the full width of 15 feet.

The Mission Street sidewalk in front of the project site currently operates in unimpeded conditions during both the noon and p.m. peak hours. The First Street sidewalk operates in unimpeded conditions during the noon hour and impeded conditions during the p.m. peak hour. The crosswalk across Mission Street currently operates in impeded conditions during both the noon and p.m. peak hour. The crosswalk crossing First Street closest to the site operates in unimpeded conditions during the noon hour and impeded conditions during the p.m. peak hour. Pedestrian volumes on Minna Street are low during both the noon and p.m. peak hour. Minna Street is mostly used by pedestrians directed to and from the parking facility along that street./6/

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District.

NOTES - Transportation, Circulation and Parking

/1/ San Francisco Department of City Planning, January 1983, Transportation, An Element of the Master Plan.

/2/ K. L. Wong, Muni Planning Division, letter, October 10, 1984.

/3/ Scott Shoaf, Department of Public Works, Bureau of Engineering, Division of Traffic, telephone conversation, January 3, 1985.

/4/ Kay McGuill, Golden Gate Bridge, Highway and Transportation District, telephone conversation, May 13, 1982. Elysia Chan, Public Information Officer, RIDES for Bay Area Commuters, Inc., telephone conversation, May 13, 1982.

/5/ Traffic Survey Services MA-60, Bay Bridge, Metropolitan Transportation Commission, November 1983.

/6/ Based on observations at the project site conducted by Environmental Science Associates on Monday and Thursday, November 14 and 17, 1983, during the evening commute period.

F. AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network which measures the ambient concentrations of six air pollutants: ozone (O_3), carbon monoxide (CO), total suspended particulates (TSP), lead (Pb), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). On the basis of the monitoring data, the Bay Area, including San Francisco, currently is designated a non-attainment area with respect to the federal ozone and CO standards. A three-year summary of the data collected at the BAAQMD monitoring station nearest the project site (about 2.4 miles south at 900 23rd St.) is shown in Appendix F, p. A-52, together with the corresponding federal and/or state ambient air quality standards. In 1983, there was one violation of the federal and state one-hour average ozone standards, and four violations of the state 24-hour average TSP standard; in 1982 there was one violation of the federal and state eight-hour average CO standard, and three violations of the state 24-hour average TSP standard; and in 1981 there was one violation of the state 24-hour average TSP standard.

A CO "hotspot" monitoring program was conducted during the winter of 1980-81 at the intersection of Geary and Taylor Sts., about 0.8 miles west of the site./1/ The observed high eight-hour average concentration was 11.5 ppm, which violates the 9-ppm state and federal standard by 2.5 ppm. The high one-hour average concentration of 15 ppm does not violate the 20-ppm state standard or the 35-ppm federal standard. Another CO hotspot monitoring program was conducted during the winter of 1979-80 at the intersection of Washington and Battery Sts., about 0.5 miles northwest of the site./2/ The high eight-hour average concentration was 10.1 ppm, which violates the standard by 1.1 ppm. The high one-hour average concentration of 15 ppm does not violate the standards. These data indicate that locations in San Francisco near streets with high traffic volumes and congested traffic flows may experience violations of the eight-hour CO standard during adverse meteorological conditions.

A third CO hotspot monitoring program was conducted during the winter of 1980-81 at 100 Harrison St., about 0.4 miles southeast of the site. The high eight-hour and one-hour average concentrations were 7.8 ppm and 13 ppm, respectively, which do not violate the standards.

Comparisons of these data with those from other BAAQMD monitoring stations reveal that San Francisco's air quality is among the least degraded of all the developed

portions of the Bay Area. Two of the three prevailing winds, westerly and northwesterly, blowing off the Pacific Ocean reduce the potential for San Francisco to receive pollutants from elsewhere in the region.

San Francisco's air quality problems, primarily CO and TSP, are due largely to pollutant emissions from within the City. CO is a non-reactive pollutant with one major source category, motor vehicles. Ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. TSP levels are relatively low near the coast, increase with distance inland, and peak in dry, sheltered valleys. The primary sources of TSP in San Francisco are demolition and construction activities, and motor vehicle travel over paved roads.

San Francisco contributes to air quality problems, primarily ozone, which is a regional problem, in other parts of the Bay Area. Ozone is not emitted directly, but is produced in the atmosphere over time and distance through a complex series of photochemical reactions involving emitted hydrocarbons (HC) and nitrogen oxides (NOx), which are carried downwind as the photochemical reaction occurs. Ozone standards are violated most often in the Santa Clara, Livermore, and Diablo Valleys, because local topography and meteorological conditions favor the buildup of ozone and its precursors there.

In 1982, emissions from motor vehicles were the source of 46% of the HC, 56% of the nitrogen oxides (NOx), 86% of the CO, and 44% of the TSP emitted in San Francisco, while ships were the largest single source of sulfur oxides (SOx), about 61% of the total./3/ These percentages are expected to apply reasonably well to current conditions.

In response to the Bay Area's ozone and CO nonattainment designations, the Association of Bay Area Governments (ABAG), BAAQMD, and the Metropolitan Transportation Commission (MTC) prepared and adopted the 1982 Bay Area Air Quality Plan, which establishes pollution control strategies to attain the federal ozone and CO standards by 1987 as required by federal law./4/ These strategies were developed on the basis of detailed subregional emission inventories and projections, and mathematical models of pollutant behavior, and consist of stationary and mobile source emission controls and transportation improvements. The BAAQMD, MTC, and California Bureau of Automotive Repair have primary responsibility for implementation of these strategies.

NOTES - Air Quality

/1/ ABAG, BAAQMD, MTC, January 1982, AQMP Tech Memo 40, "Results of the 1980/81 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California.

/2/ ABAG, BAAQMD, MTC, June 1980, AQMP Tech Memo 33, "Summary of 1979/80 CO Hotspot Monitoring Program," Berkeley, California.

/3/ BAAQMD, November 1, 1983, "Base Year 1982 Emissions, Inventory, Summary Report," San Francisco, California.

/4/ ABAG, BAAQMD, MTC, December 1982, 1982 Bay Aea Air Quality Plan, Berkeley, California.

G. ENERGY

Pacific Gas and Electric Company (PG&E) supplies energy to San Francisco customers. Electrical energy is generated from various sources of energy including oil, natural gas, hydroelectric, geothermal, nuclear, wind, cogeneration and solid waste./1/ In future years PG&E expects to generate electricity from these sources and from coal. The proportion of energy generated from oil and gas is expected to decrease by 1990 with corresponding increases in the proportion of energy generated from the other sources listed above./2/

The site is occupied by seven one- to five-story buildings containing parking, retail, restaurant, office, light-manufacturing, studio and downtown support uses; information on current energy consumption is not available.

NOTES - Energy

/1/ PG&E Annual Report, San Francisco, California, 1982.

/2/ PG&E Annual Report, San Francisco, California, 1981.

H. EMPLOYMENT AND HOUSING FACTORS

ON-SITE EMPLOYMENT

Businesses at the site employ about 200 persons (see Table 3) in a variety of occupations. The existing buildings include: four studios for artists, film production and musicians; a barber; a shoe repair establishment; an amusement arcade; three retail stores (women's clothing, luggage, and drugstore); three restaurants; two bars; three light-manufacturing

TABLE 3: EXISTING USES AND EMPLOYMENT AT THE SITE

Address (Lot)	Tenant	Gross Floor Area (sq. ft.)	Employees/a/
RETAIL:			
517 Mission (Lot 87)	Harband's Luggage	2,400	5
505 Mission (Lot 1)	Patty Quinn's	3,800	10
501 Mission (Lot 1)	Terminal Drugs	2,625	10
112-114 First (Lot 3)	Barber	750	1
112-114 First (Lot 3)	Shoe Repair	750	3
120 First (Lot 5)	Fun Terminal	2,250	14
	TOTAL RETAIL	12,575	43
RESTAURANT AND BAR:			
515 Mission (Lot 87)	Zazu Pitts Deli	1,500	6
108 First (Lot 2)	Bar & Restaurant	750	6
110 First (Lot 2)	B & M Family Restaurant	2,625	5
116 First (Lot 4)	Giant Foot Sub	1,125	3
118 First (Lot 5)	Wagonwheel Tavern	3,125	10 *
	TOTAL RESTAURANT AND BAR	9,125	30
STUDIOS:			
110 First, 5th Fl. (Lot 2)	Film Production	1,650	30
110 First, 4th Fl. (Lot 2)	Artist	1,650	2
110 First, 3rd Fl. (Lot 2)	Artist	1,650	3
116 First, 2nd & 3rd Fl. (Lot 4)	Music	3,150	5 *
	TOTAL STUDIO	8,100	40
LIGHT MANUFACTURING:			
110 First, 2nd Fl. (Lot 2)	Lichtman Jewelry Mfg.	1,650	7
16 Minna, 3rd Fl. (Lot 5)	Stern Folding Paper Box	9,375	25
16 Minna, 4th Fl. (Lot 5)	Handa Garment Mfg.	9,375	25 *
	TOTAL LIGHT-MANUFACTURING	20,400	57
OFFICE:			
519 Mission (Lot 87)	Chun/Isimaru & Associates	6,500	6
	W. Welter, Designer	(sublease)	5 *
	C. Eley, Architect	(sublease)	4 *
	TOTAL OFFICE	6,500	15

(Continued)

TABLE 3: EXISTING USES AND EMPLOYMENT AT THE SITE (Continued)

Address (Lot)	Tenant	Gross Floor Area (sq. ft.)	Employees/a/
DOWNTOWN SUPPORT:			
512 Minna (Lot 5)	Russell's Mail Service	1,000	2
14 Minna (Lot 5)	Young & Fong Cleaners	1,000	4 *
	TOTAL DOWNTOWN SUPPORT	2,000	6
PARKING:			
521 Mission (Lot 84)	Metropark	85 spaces	8
VACANT SPACE:			
10 Minna, 1st Fl. (Lot 5)			1,000
14 Minna, 1st Fl. (Lot 5)			1,000
16 Minna, 2nd Fl. (Lot 5)			9,375
503 Mission, 2nd Fl. (Lot 1)			3,750
	TOTAL VACANT SPACE	15,125	
	TOTAL EXISTING EMPLOYMENT		199

/a/ The number of employees of each tenant was provided by the tenants except those followed by an asterisk. Numbers of employees followed by an asterisk were estimated based on the amount of space leased and on-site observations conducted by Environmental Science Associates in October and November, 1983.

SOURCES: Barker Interests Limited; Skidmore Owings & Merrill - Houston; and Environmental Science Associates, Inc.

firms (jewelry, boxes, and garments); one floor of office use occupied by three professional firms; a mail service; a cleaner; and an 85-space parking garage. Most on-site employment is blue-collar or service sector.

SAN FRANCISCO AND REGIONAL OFFICE SPACE

San Francisco is the major office center in the Bay Area, with approximately 60.6 million gross square feet of office space at the end of 1982. The C-3 district had 55.3 million square feet of office space in 1981 and about 62.1 million square feet of office space in

1984./1/ During the 1970's, space in downtown office buildings was added at a rate of about 1.5 million gross square feet per year. Between 1980 and 1982, space was added at an average rate of about 2.4 million gross square feet per year. Approximately 36.1 million gross square feet of net new office space was constructed between 1960 and 1982 (see Appendix C, Table C-1, p. A-29). The projects under review, approved or under construction as of March 10, 1984 include projects in the greater downtown area outside of the C-3 District (see Appendix C, Table C-3, pp. A-35 of this report). An additional 5.5 million gross square feet of net new office space will be added when buildings under construction (as of March 10, 1984) are finished, and another 4.8 million square feet of net new office space has been approved but is not yet under construction (as of March 10, 1984). Another 8.7 million square feet would be added if the projects under formal review as of March 10, 1984 were eventually built. This total of 19.0 million gross square feet of net new office space includes 100 First Street, listed as of March 10, 1984 as adding 342,000 gross square feet; 446,100 gross square feet of net new office space is currently proposed. Existing space that would be or has been demolished to construct proposed developments has been subtracted from the totals (see Appendix C, Table C-3, p. A-35). Office space projections in the Downtown Plan EIR indicate the C-3 District would contain approximately 70.5 million gross square feet of office space by 1990, and 78.9 million gross square feet of office space by 2000./2/ Alternatives analyzed for the Downtown Plan EIR indicate net increases of office space in the downtown of approximately 1.4 million square feet per year between 1984 and 1990 and a range of 0.7 million to 1.6 million square feet per year between 1990 and 2000.

Vacancy Rates and Commercial Rents

On the basis of a 1984 citywide survey of 315 office buildings, the San Francisco Building Owners and Managers Association (BOMA) reported a citywide vacancy rate of 6.8%./3/ This rate is a decrease from the 7.1% rate reported by BOMA in its October 1983 survey, and an increase over the 3.7% rate reported in a 1982 survey and the one percent rate reported in a 1981 survey. According to a September 1984 Coldwell Banker survey, the vacancy rate in downtown San Francisco office buildings (new, existing and major renovations) was 9.0%./4/ The 9.0% rate is an increase from 0.1% during June 1981 and 6.1% during June 1983 (earlier Coldwell Banker surveys). The vacancy rate for September 1984 is the highest that has been reported for San Francisco since Coldwell Banker started this survey in 1978. The current 9.0% vacancy rate is the fifth lowest of the 32 major downtown financial districts surveyed by Coldwell Banker. For comparison, as of

September 1984 the office vacancy rate was 14.2% nationally; 10.1% in Chicago; 7.1% in downtown Manhattan; 15.3% in Dallas; and 14.0% in San Jose./4/

The surveys indicate a general trend of increasing vacancy rates for downtown San Francisco office buildings over the last three years. This increase is the result of several factors, including an increase in the amount of available office space (new space being completed and space available for sublease), a decrease in the demand for office space, and the nationwide economic recession. Higher vacancy rates point to a softer office market than has existed in recent years. However, according to Coldwell Banker, "Demand for prime office space in San Francisco's financial district remains strong as evidenced by healthy levels of preleasing activity in new buildings and a . . . vacancy rate considerably below the national average."/5/

There has been a concurrent demand for and development of office space elsewhere in the Bay Area. Some businesses have moved clerical, support, and production departments to outlying areas while maintaining headquarters and main branch offices in San Francisco. In particular, the City of Oakland, and San Mateo and Contra Costa Counties are experiencing increased demand for office space. Approximately 6.0 million square feet of office space in nine new buildings is proposed for construction in Oakland over the next 10 years/6/, about 17 million square feet of office space is proposed or under construction along the U.S. 101 corridor in San Mateo County,/7/ and 15.8 million square feet of space is proposed or under construction in Contra Costa County./8/ These totals include projects in various stages of public review, not all of which may be approved or built.

As a result of high demand in San Francisco and increasing operating costs, land prices, construction costs, and interest rates, annual rents for office space in the downtown financial district have tripled in the last decade, from $8.50 per square foot in 1970 to approximately $30 per square foot in 1981./9/ New buildings are able to charge the highest rents, while rents in older buildings in the financial district are much less expensive, averaging between $10 and $15 per square feet./9,10/ The rents for new office space in San Francisco ($28 to $42 per square foot) are about 45% higher than commercial rents in Oakland ($18 to $27 per square foot); the Peninsula ($18 to $24 per square foot); and Contra Costa County ($16 to $27 per square foot)./10/ Should the recent rise in vacancy rates continue, the pressure for higher commercial office rents would be

expected to decline in San Francisco. A rising vacancy rate could lower rents and increase future lessees' choice for size, layout and location of office space.

HOUSING

The housing stock in San Francisco and the region is characterized by low growth rates, low vacancy rates for rental units, and high purchase prices and rental costs in relation to typical wages paid. These factors, some of which would normally stimulate new housing construction, are in part the result of high interest rates and land costs which have constricted the supply and affordability of housing in San Francisco.

San Francisco has about 316,600 occupied housing units, according to the 1980 U.S. Census; about two-thirds of the housing stock is rented and one-third is owner-occupied./11/ Housing units completed in 1982 totalled about 590 units; of these, about 170 units were developed through public action and about 420 units were developed by the private sector./12/ The average 1980 market value of a single-family house was $140,000 in the Bay Area and $148,000 in San Francisco./13/ The 1980 Census reports a 1980 median value of $104,600 for single-family units (not including condominiums), and a vacancy rate of 1.0% for owner-occupied dwellings in San Francisco./14/ According to a statistically nonrandom survey of newspaper advertisements by the Department of City Planning in 1980, median advertised rents ranged from $289 for a studio apartment to $588 for a unit with 3+ bedrooms, and averaged $455 for all types of units. Census data for 1980 indicated a median rent in the City of $267 and a vacancy rate of 4.2% for rental units./14/ The Census data include residential hotels and subsidized housing. A survey conducted by the Federal Home Loan Bank of San Francisco in September 1983 indicated a vacancy rate of 0.9% for multi-family units and 1.2% for single-family houses./15/ A vacancy rate of four to five percent indicates a competitive market; the very low rate in San Francisco means that people looking for housing are having difficulty finding new residences. This high demand for housing may also cause further price increases.

NOTES - Employment and Housing Factors

/1/ San Francisco Department of City Planning, Downtown Plan EIR, EE.81.3, certified October 18, 1984, pp. IV.B.2 and IV.B.17.

/2/ Downtown Plan EIR, pp. IV.B.28 and IV.B.31.

/3/ Elmer Johnson, Building Owners and Managers Association, telephone conversations, December 22, 1982, June 12, 1984, October 3, 1984, and January 5, 1985.

/4/ Coldwell Banker, "Office Vacancy Index of the United States," September 30, 1984. San Francisco vacancy rates are determined in a national survey of 34 major office districts conducted quarterly. A copy of the September 30, 1984 survey is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

/5/ Coldwell Banker, "Office Vacancy Index of the United States," June 30, 1983.

/6/ City of Oakland, Department of City Planning, "Major Buildings in the Central District," January 26, 1982. No more current data on Oakland development are available from that Department.

/7/ Blayney-Dyett, Urban and Regional Planners, "Proposed Specific Plan: Bayshore Office Park and Baylands Development Area, Brisbane, California," July 1982, and Metropolitan Transportation Commission, "Travel Impacts of Proposed Development on the Peninsula Along Route 101," September 9, 1982.

/8/ People For Open Space, "Proposed East Bay Office/Industrial Development," October 1982.

/9/ Department of City Planning Memorandum to the City Planning Commission, "South of Market Interim Controls," January 26, 1982.

/10/ Coldwell Banker, "The Commercial Real Estate Market in the San Francisco Bay Area," December 1982.

/11/ Association of Bay Area Governments (ABAG), "Census Data Bulletin No. 6," March 1982.

/12/ San Francisco Department of City Planning; Housing Information Series: Changes in the San Francisco Housing Inventory, 1981 and 1982; September 1983.

/13/ Security Pacific Bank, "Monthly Summary of Business Conditions - Northern Coastal," March 31, 1981, p. 2.

/14/ City Planning Information Services, "1980 Census Information," March 1982.

/15/ Federal Home Loan Bank of San Francisco, "San Francisco County Housing Vacancy Survey," April 1984.

IV. ENVIRONMENTAL IMPACT

An application for environmental evaluation for the project was filed on July 22, 1983. On January 6, 1984, based on an Initial Study, the Department of City Planning Office of Environmental Review determined that an Environmental Impact Report was required. Issues determined as a result of the Initial Study to require no further environmental analysis include: Operational Noise, Reflected Light and Glare, Air Quality during Construction, Utilities/Public Services (except for possible effects on fire protection services), Biology, Geology/Topography, Water, Hazards and Archaeological Resources. Therefore, this document does not discuss these issues (see Appendix A, pp. A-3 - A-26, for the Initial Study). During the period of EIR preparation, after publication of the Initial Study, the San Francisco Fire Department stated that foreseeable cumulative development as discussed in the Downtown Plan EIR would not require the establishment of any new fire stations; therefore, this EIR does not consider this topic further./1/ The project as proposed differs in size and form from the design considered in the Initial Study. No change in the issues determined to require no further environmental analysis is warranted by the differences. Some of the impacts presented in this section are not physical environmental effects as defined by the California Environmental Quality Act. They are included in the EIR for informational purposes only.

NOTE

/1/ Edward J. Phipps, Assistant Chief, Support Services; San Francisco Fire Department, letter, July 9, 1984. This letter is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

A. LAND USE AND ZONING

LAND USE

The project would continue the trend of high-rise office development in the South of Market area. It would be the second high-rise tower (after the Fremont Center building) to be constructed facing the open and passenger unloading area in front of the

Transbay Terminal. Traditionally, the South of Market area has been characterized by businesses such as retail, printing and other services. Some older buildings in the area, which typically house these uses, have been replaced by high-rise office buildings.

The project would require demolition of six, one- to five-story structures for construction of a 26-story office and retail building. The site contains uses including downtown-serving businesses such as cleaning, barber shop, amusement arcade, shoe repair store, and retail and restaurant establishments; light-industrial uses; and artist, musician, and film production studios. Many of the businesses on the site are currently in the process of vacating it. The project would replace these uses with a building containing 25 floors of offices, a net increase of about 446,100 square feet of office space, and three retail spaces and a restaurant, a net decrease of about 13,000 square feet of retail and restaurant space.

Parts of the South of Market District, particulary east of the project block, have been developed with highrises such as Fremont Center, Pacific Gateway, 100 Spear Street and 160 Spear Street. Land use changes are occurring in this area. Other projects proposed, approved or under construction in the project area are shown on Figure 16, p. 36. The available data suggest that the increase of office uses south of Market Street is both a cause and result of displacement of existing uses in the this part of the C-3 District, although the relative weight of the various factors cannot be quantified. Office users requiring rents lower than typical rents in the downtown core move south of Market Street to take advantage of lower land costs. Rent increases associated with office uses can force industrial uses to seek less expensive locations. To some degree, light industrial uses have moved out for a number of reasons and offices are able to use the vacated space. The expansion of office space into South of Market area is more than spillover from the downtown; it is also a response to changing space needs of industries that once dominated South of Market. To a certain extent, industrial uses are leaving this area independent of direct pressure from more intensive uses such as office buildings. The Bay Area has experienced the recent phenomenon documented nationwide, the movement of manufacturing from central cities to outlying areas and changes in industrial technology. Reasons for the trend generally fall into two broad categories: shifting labor force markets and changing industrial land use patterns.

The project would be consistent with the description of the C-3-0 (Downtown Office) district contained in Article 2, Section 210.3 of the City Planning Code. The Section describes the district playing a leading national role in finance, corporate headquarters and service industries and serving as an employment center for the region.

THE DOWNTOWN PLAN

The Downtown Plan, Proposal for Citizen Review (the Plan), published by the Department of City Planning in August 1983, and amended in June, October and November 1984, contains comprehensive changes in controls of the scale, intensity, and location of growth in downtown San Francisco; architectural preservation; open space; sunlight access; wind criteria; and transportation. The Downtown Plan has been adopted by the City Planning Commission. The Final EIR for the Downtown Plan was certified October 18, 1984. On November 29, 1984, the City Planning Commission adopted the Downtown Plan and related amendments to the Comprehensive Plan, approved Permanent Controls and recommended that the Board of Supervisors so amend the ordinances comprising the City Planning Code to implement the changes included in the Downtown Plan. Implementation of the Downtown Plan through amendment of the City Planning Code requires action by the Board of Supervisors and the Mayor. The Planning Commission also adopted Interim Controls, which will be in effect for six months until the Board of Supervisors and the Mayor act on the proposed amendments to the Planning Code to implement the Plan.

In this EIR, the proposed project has been evaluated in the context of the Downtown Plan and proposed amendments to the City Planning Code to implement the Downtown Plan (Permanent Controls). Interim Controls are discussed where they differ from the proposed Permanent Controls. For a discussion of the proposed project's compliance with the provisions of the City Planning Code (September 1979) without the Downtown Plan ordinances, see Chapter VII, Alternatives, D., p. 181./1/ The relationship of the project to the major sections of the Plan is discussed below, and summarized in Table 4.

Under the Downtown Plan, the basic FAR for the C-3-0 district, including the project site, is 10:1. The Plan excludes the following from the FAR calculation: ground-floor building service and internal circulation; replacement short-term parking; cultural, religious and social service areas; and ground-floor and mezzanine-level retail, restaurant, and personal service space up to 75% of ground-floor open space and interior areas.

TABLE 4: COMPARISON OF PROPOSED PROJECT WITH THE DOWNTOWN PLAN

Major Controls Pertaining to Site	Proposed Project	Downtown Plan	1979 City Planning Code (Pre-Downtown Plan)
FAR	11.4:1 on the development site, as calculated under Plan, and including TDR./a/	10:1 /b/, plus TDR up to 18:1	14:1, plus Floor Area Bonuses
Height Limit	385 ft. on east; 38 ft. on Lot 84	350 ft. on east; 550 ft. on Lot 84/c/	500 ft. on entire site
Height of Base	Height of base at 68 ft. would conform to Plan	Height of bldg. base may not exceed 103 ft. (1.25 times width of Mission Street); may not be lower than 50 ft.	Not applicable
Maximum Diagonal	Lower tower (to 298 ft.): 185 ft. Upper tower: 145 ft.	350-S Height and Bulk District/d/ Lower tower: 200 ft. Upper tower: 160 ft.	200 ft. above 150 ft.
Maximum Length	145 ft. above 150 ft. 115 ft. above 289 ft.	Lower tower: 160 ft. Upper tower: 140 ft.	170 ft. above 150 ft.
Average Floor Area	Lower Tower: 19,500 sq. ft. Upper Tower: 15,000 sq. ft.	Lower Tower: 20,000 sq. ft. Upper Tower: 12,000 sq. ft.	Not applicable
Incorporation of Art	Sponsor would comply with Plan	Public art equal to one and one-half percent of total construction cost	Not applicable
Area Excluded from FAR Calculation	5,800 sq. ft. of ground-floor retail uses, 2,900 sq. ft. lobby and 2,900 sq. ft. 2nd-level mezzanine restaurant would be excluded from FAR calculation under Plan	Excluded from FAR calculations are: child care facilties; mechanical space; replacement short-term parking; cultural, religious and social service facilities; ground-floor pedestrian circulation and building service space; and ground-floor and mezzanine-level space devoted to personal services, restaurants and convenience retail (not to exceed 75% of the area of ground-floor interior and open space)	Uses listed as excluded under the Plan are included in FAR calculation
Recreation/Open Space	17,750 sq.ft. provided on-site: in vest pocket park, sun terrace and lobby art exhibition area	1 sq. ft. of public use per 50 sq. ft. of gross floor area; (9,200 sq. ft. for project)	Not required for commercial uses
Sunlight Access	Would shadow Terminal open and passenger unloading area during winter, spring and fall afternoons	Minimize substantial shadow impacts on public plazas and other publicly accessible spaces, without unduly restricting development potential; consider duration, area, and importance of sunlight to utility of open space	Not applicable

(Continued)

TABLE 4: COMPARISON OF PROPOSED PROJECT WITH THE DOWNTOWN PLAN (Continued)

Major Controls Pertaining to Site	Proposed Project	Downtown Plan	1979 City Planning Code (Pre-Downtown Plan)
Wind	Southwest wind speeds would exceed the 11 mph comfort level at four points	Ground-level winds may not exceed, more than 10% of the time year round between 7 a.m. and 6 p.m., 11 mph in areas of substantial pedestrian use and 7 mph in public seating areas	Not applicable
Off-Street Loading	4 loading spaces and 2 service spaces (equivalent to a total of 5 spaces); number would comply with Plan; loading would not be fully enclosed within the site	0.1 spaces per 10,000 sq. ft. of office space, plus 0 space for retail/restaurant use less than 10,000 sq.ft. (5 spaces for project); for more than 4 spaces, all spaces and truck maneuvering room must be fully enclosed within the site	2 spaces for 200,001 - 500,000 sq. ft of office. 0 spaces for retail below 10,000 sq. ft. 2 spaces required for proposed project. No restrictions on maneuvering room
Parking	No new parking spaces proposed; 85 parking spaces to be retained and operated as short-term to comply with Plan	Rate structure to encourage short-term use; replacement short-term parking exempt from FAR; long-term parking discouraged	None required for commercial uses in C-3; up to 7% of floor area allowable as accessory use
Transportation Broker	Would be provided by building management	Required	None required
Housing	Would conform to OHPP/e/	OHPP/e/ requires 399 units for proposed 446,100 net new sq. ft. of office space	Not applicable
Architectural Resources	Would not demolish significant buildings	No demolition of significant buildings (Categories I and II)	No restrictions, except on City landmarks (Article 10)

/a/ Development rights (TDR) would be transferred from 74 New Montgomery Street. The FAR on the combined preservation and development sites would be less than 10:1.
/b/ Downtown Plan excludes from FAR: mechanical and building service space; ground-floor internal circulation areas; and ground-floor and mezzanine-level convenience retail, personal service and restaurant space up to 75% of the area of the ground-floor interior and open space areas.
/c/ For the eastern part of the site, 350 ft. limit plus additional height allowable up to 10% above limit permitted with reduced bulk, or for mechanical space or usable penthouse space within 50-degree planes from edge of roof (385 feet for the project). The western Lot 84 could have comparable additional height.
/d/ In order to foster sculptured high-rise building tops, the Downtown Plan includes mandatory volume reductions for the upper part ("upper tower") and lower part ("lower tower") of a high-rise building. For a detailed discussion of this volume reduction, see pp. 65 - 66.
/e/ Office Housing Production Program (OHPP) Interim Guidelines, January 1982.

SOURCE: Environmental Science Associates, Inc.; Barker Interests Limited; and Skidmore, Owings and Merrill - Houston.

Development greater than the basic 10:1 FAR would be allowable through transfer of development rights (TDR) from sites with unused potential floor area within the same zoning district, that include architecturally significant buildings or new parks or open space. The combined basic FAR of the sender and receiver sites may not, however, exceed 10:1. The structure on the development site receiving TDR must comply with any limitation imposed by the Code, including review under Section 309, Permit Review in C-3 Districts. The Plan includes four categories of architecturally significant buildings ranging from Category I (retain essentially intact) to Category IV (encourage retention; allow replacement as a contributory building). No buildings on the site are listed in any of these categories. The Interim Controls do not permit the transfer of development rights or provide for the preservation of architecturally significant buildings. Because the project would use TDR, it could not be approved by the City Planning Commission while the Interim Controls are in effect. For a discussion of an alternative proposed to comply with the Interim Controls, see Chapter VII, Alternatives, C., p. 176.

Calculated under the Plan, the gross floor area of the project would be about 459,900 square feet. The ratio of built area to development site area would be about 11.4:1. Under the Downtown Plan, the project could transfer development rights (TDRs) purchased by the project sponsor from architecturally significant buildings (Categories I and II) within the same C-3 Use District. The TDR process would allow development of a building area in excess of the basic FAR of 10:1 for the 40,500-square-foot site. About 54,900 gross square feet of TDRs would be transferred to the project from 74 New Montgomery Street (the Call Building), in Category I of the Downtown Plan. The FAR for the project site and 74 New Montgomery Street, overall, would be less than 10:1.

Under the Downtown Plan, the portion of the site containing the parking garage is in a 550-S district; the height limit is 550 feet. The eastern portion of the project site which would contain the project tower is in a 350-S Height and Bulk District, in which structures up to 385 feet are allowable under the provisions outlined for "optional upper tower extensions," if the added height does not create significant shadow problems. At 385 feet, the project would comply with these height limits. The "S" bulk designation controls building dimensions, floor sizes and bulk through Downtown Plan Bulk Control Zone Charts A and B. Essentially, these bulk controls require setbacks, smaller floor sizes and slimmer building profiles with increased building height. For a 385-foot building on the project site, the proposed controls require a base zone, related to the width of

the widest abutting street (in this case, Mission Street), delineated by a setback, cornice or other architectural feature, and a lower tower zone that could be developed out to the lot lines (if there were no setbacks from the base zone). An upper tower zone would begin at a height of 200-feet; average floor area in this zone could not exceed 12,000 square feet, and building volume would be required to be reduced by about 20%, compared to a straight vertical extension of the lower tower.

Two optional upper tower extensions could be permitted, to allow for flexibility of design and to encourage slender and more sculptured building tops. Option I allows a ten percent increase in building height, upon further reduction of upper tower volume, controlled by Bulk Control Zone Chart B. Option II permits mechanical equipment, decorative roof construction, or usable penthouse space above the height limit, within the volume formed by planes sloping inward from the outer edge of the roof at a 50-degree angle with the horizontal. The Plan requires distinctive building tops on new buidings, such as cornices, parapets, hip roofs or domes.

The project would conform to the average length and diagonal dimension as required by the Plan. The building base would be 68 feet in height. The lower tower would extend up to 290 feet; the upper tower would be progressively stepped back in an octagonal form above 290 feet. The project would exceed the permitted average upper tower floor area of 12,000 square feet by about 3,000 square feet. It would thus need an exception to the bulk limits which may be approved by the City Planning Commission under Sections 272 and 309 of the proposed amendments to the Planning Code implementing the Downtown Plan.

Along the western property line, the Downtown Plan requires an interior block lot line setback, at a height which is 1.25 times the width of the principal fronting street, in order to provide light and air between structures (Section 132.1(c)). The design of the project would conform to this requirement by retention of the garage at 521 Mission Street; its height is less than 1.25 times the width of Mission Street and its width would provide the necessary setback.

The Downtown Plan requires that shadows on publicly accessible open space be minimized (Section 147). It calls for new buildings to be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site, to reduce

substantial shadow impacts. Among the factors for the determination of shadow impact are: amount of area shadowed; duration of the shadow; and the importance of sunlight to the utility of the type of open space being shadowed.

The Downtown Plan requires usable indoor or outdoor open space, accessible to the public, as part of new downtown development. The ratio of usable open space to new building space in the C-3-0 is one square foot of open space for every 50 square feet, or about 9,200 square feet for the project. The project would include 17,750 square feet of open space (about 8,550 square feet of open space in excess of the requirement), in an on-site vest pocket park, a sun terrace and a lobby art exhibition area. The final distribution of open space would be determined in cooperation with the Department of City Planning. The excess open space could be credited toward 535 Mission Street, proposed immediately to the west, for which an Environmental Evaluation form has been filed with the Department of City Planning.

THE COMPREHENSIVE PLAN

The project would be in accord with some policies of the Commerce and Industry Element of the City's Comprehensive Plan, and would conflict with some others. It would respond to Objective 1, Policy 1, to maintain and enhance a favorable business climate in the City. Although the project would provide unskilled clerical and jantorial jobs, it would result in a net decrease in blue-collar jobs. It would therefore only partly comply with Objective 3, Policy 1, which seeks to provide "employment improvement opportunities for unskilled and semi-skilled workers." The overall employment that would be generated by the project is found in Chapter IV., Impacts, I., pp. 145 - 147.

The project is intended to respond to Objective 4, Policy 2, to promote and attract economic activities of benefit to the City. The project would respond to Objective 6, to support San Francisco as a "prime location for financial, administrative, corporate, and professional activity". The project would respond to Policy 1 of this Objective, to encourage continued growth of downtown office activity.

Policy 2 of Objective 6 is to guide "office development to maintain a compact downtown core so as to minimize displacement of other viable uses". The project would respond to Policy 2 by concentrating office uses near a major downtown transit center. It would result in a net decrease of retail and restaurant, downtown support and studio,

light-industrial and other uses existing on the site. The loss of uses other than offices would not respond to Policy 2 of Objective 6. The project would respond to Policy 4 of Objective 6 of the Commerce and Industry Element to provide "amenities for those who live, work and use the Downtown" by provision of retail and open space on the ground floor and second-floor mezzanine level. The project would remove a drug store and other uses as noted above.

The relationship of the project to urban design policies in the Urban Design Element of the Comprehensive Plan is discussed in Chapter IV., Impacts, C, pp. 70-80, and Table 5, pp. 71-74. The project in relation to transportation policies of the Comprehensive Plan is discussed in Chapter IV., Impacts, E., pp. 95-127).

NOTES - Land Use and Zoning

/1/ Under the City Planning Code (September 1979), without the proposed amendments to implement the Downtown Plan, the 385-foot project would be about 115 feet shorter than the maximum height of 500 feet permitted in the 500-I Height and Bulk District. The building length would be about 25 feet less and the diagonal dimension about 15 feet less than the 170 and 200 feet, respectively, permitted in the I Bulk districts. The Floor Area Ratio (FAR) of the project, as calculated under the Section 102.8 of the Code would be about 11.9:1, less than the 14:1 allowable in the C-3-0 district.

/2/ Under the Downtown Plan, gross floor areas are measured along glass lines above four feet and along overall building wall planes. The 1979 Code, without the proposed amendments to implement the Downtown Plan, requires measurement from exterior faces of exterior walls or from the center lines of walks separating two buildings.

B. HISTORIC AND ARCHITECTURAL RESOURCES

ARCHITECTURAL RESOURCES

Six of the buildings on the site would be demolished to permit construction of the project (see Figures 11, 12, 13 and 14, pp. 30-33). The parking garage at 521 Mission Street would be retained. None of the buildings is rated in the 1976 Department of City Planning survey of architecturally significant buildings, included on the City's List of Historically and/or Architecturally Significant Buildings in the Downtown or included in Categories I-IV of the Downtown Plan. The site is about 400 feet outside the Downtown Plan New Montgomery - Second Streets Conservation District located to the west.

Four of the seven buildings on the site are rated "C" by the Foundation for San Francisco's Architectural Heritage's Splendid Survivors survey /1/. A "C"-rated building is defined by Heritage to be of contextual importance. These buildings, described by Heritage as distinguished by their scale, materials, compositional treatment, cornice and other features, provide the setting for more important buildings and add visual character and richness to the downtown area (see Chapter III., Setting, B., Table 2, p. 43, for relevant information about site buildings, and Appendix B, p. A-27 for a detailed description of the architectural rating systems. The two-story garage at 521 Mission Street, the westernmost building on the site, is a brick-clad rectangular block. It would be renovated and functionally and architecturally integrated into the project; its facade would be clad in materials similar to those used on the project tower. The two-story, stucco 511-519 Mission Street building, built in 1906 and the oldest building on the site, has a six-bay facade defined at the second level by rusticated piers./2/ The 118-124 First Street building (1907) at First and Minna is a four-story rectangular block faced in yellow brick. The square openings of the second and third floors are recessed with paneled spandrels/3/ between floors. The 116 First Street building (1921) is a three-story vertical shaft with moorish facade detailing. The third story is articulated by three narrow arched windows divided by bound columns. The cornice contains a projecting marque clock./4/ The five-story stucco 110 First Street (1922) has moorish detail at its second-floor entablature/5/ and paneled spandrels between floor levels. These four buildings are all rated "C" by Heritage./6/ As noted above, Heritage's "C" rating indicates buildings of contextual importance to the overall architectural character of the area. Demolition of these buildings would affect this context and interrupt the continuity of one- to five-story brick buildings typical of the South of Market area south and southwest of the site.

Two-story 104-106 First Street at Mission Street (1938), is a rectangular box with a yellow stucco facade. One-story 112 First Street (1943) features strong horizontal elements with a large expanse of plate glass. Heritage did not rate either building. Both would be demolished as part of the project.

NOTES - Historic and Architectural Resources

/1/ Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Books, 1979.

/2/ Rustication refers to beveled edges of stone blocks which make the joints conspicuous.

/3/ The sometimes ornamented space between windows or consecutive floors.

/4/ A marque clock typically projects from a building facade and is surrounded by a margin of wood or plants.

/5/ Entablature refers to the upper section of a wall that is supported on columns.

/6/ Material in this discussion is based on the Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Books, 1979.

C. URBAN DESIGN AND VISUAL QUALITY

The Urban Design Element of the San Francisco Comprehensive Plan contains policies and principles which may be used to evaluate the proposed project. The Relationship Between Applicable Urban Design Policies of the Comprehensive Plan and the Proposed Project, Table 5 compares the project to these policies.

The project would replace six small-scale buildings with a high-rise structure similar in scale to existing and proposed highrises in the South of Market area and contrasting in scale with existing older South of Market development (see Figures 19 and 20, pp. 75 and 76). The high-rise tower would be a three-part vertical shaft, intended to recall the use of that type of design in earlier San Francisco highrises. The vertical tower orientation would be accentuated by a central shaft of windows on each facade, extending from the base to the roof (see Figures 19 and 21, pp. 75 and 77). At 68 feet in height, the building would be set back about 15 feet from the Mission Street property line. The base would extend from ground level to the top of the fourth floor. The base of the tower would be adjoined by the renovated, two-story 521 Mission Street building, which would visually separate the project tower and 535 Mission Street tower, which is in preliminary planning stages and proposed to be built immediately to the west. The lower tower would extend from floors five through 21. The upper tower, floors 21 through 26, would feature a series of setbacks in octagonal form with each face punctuated by large fan windows at the top. The building top would take the form of an octagonal dome truncated at its top. The distinct roof design would be most visible on the City's southern skyline when viewed from the east and south. The building's partially dome-shaped top would contrast with the taller, more box-like buildings now forming much of the southern skyline and is intended to be more similar to older, more "tailored" structures such as the Pacific Telephone building southwest of the site.

TABLE 5: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE COMPREHENSIVE PLAN AND THE PROPOSED PROJECT

URBAN DESIGN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Policies for City Pattern	
Policy 1. "Recognize and protect major views in the City, with particular attention to those of open space and water." (p. 10)	The project site is outside major designated view corridors along Pine Street and California Street. The project would not obstruct any public views to the Bay or Transbay Terminal open and unloading area.
Policy 3. "Recognize that buildings, when seen together, produce a total effect that characterizes the City and its districts." (p. 10)	The project would be visible from medium- and long-range view points. From Twin Peaks and Potrero Hill, the project would be visible as part of a group of existing and under- construction high-rise structures of the Downtown. In short-range views, the project tower would alter the small-scale character of the area. Together with newer, nearby high-rise buildings (e.g., Fremont Center 160 Spear Street, and Pacific Gateway), the project would define, in part, the southern edge of the Downtown Office District.
Policy 6. "Make centers of activity more prominent through design of street features and by other means." (p. 12)	The project would feature a building base scaled to the height of buildings on the two opposite corners of the First/Mission intersection. The main project entrance fronting First Street would be 40 feet in height and faced with brass. The main entrance would be designed as a two-story, clear glass plane, permitting the lobby to be viewed from the street. Street trees would be provided along Mission and First Streets. About 8,700 sq. ft. of retail and restaurant space would be provided by the project; 12,575 sq. ft. of existing retail space would be demolished. The project would include a 14,000- sq.-ft. landscaped sun terrace on the roof level of the 521 Mission Street garage.

(Continued)

TABLE 5: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE COMPREHENSIVE PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Policies for Conservation	
Policy 4. "Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development." (p. 25)	The project would demolish six buildings, four of which are "C"-rated by the Heritage foundation. No buildings on the site are landmarks, of landmark quality, on the City's List of Historically and/or Architecturally Significant Buildings in the Downtown, rated in the City's 1976 Architectural Survey, or identified as Significant in the Downtown Plan.
Policy 6. "Respect the character of older development nearby in the design of new buildings." (p. 25)	The project would differ in form and scale from neighboring older buildings on First, Mission and Minna Streets. The building facade materials would be stone, metal and glass; older buildings are generally stucco, stone or brick. The project would introduce a high-rise building on a block of one- to five-story buildings. The scale of the building base would be similar to the height of older structures in the vicinity. The cornice line at the top of the base would be similar to the heights of buildings on the two opposite corners of the Mission/First intersection.
Policies for Major New Development	
Policy 1. "Promote harmony in the visual relationships and transitions between new and older buildings." (p. 36)	The project would introduce a high-rise building on a block of one- to five-story buildings. To the east and north of the project site are a number of highrises. Generally, low-rise development is located south and west of the site. As described for Policy 6, above, elements of the project are intended to relate to existing older development. The proposed project would add to the visual effect of high-rise construction in the project area.

(Continued)

TABLE 5: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE COMPREHENSIVE PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Policy 2. "Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance." (p. 36)	The project would be rectilinear in form with a top developed as a series of setbacks in an octagonal form above the 21st floor. The gray glass and light-colored stone exterior materials would appear light colored. In the context of box-shaped high-rise structures to the north of the project site, the project would appear distinct.
Policy 4. "Promote building forms that will respect and improve the integrity of open spaces and other public areas." (p. 36)	The project would increase shadows on the open and unloading areas in front of the Terminal during the afternoon. The building would be stepped back progressively from the 21st floor to minimize shadowing of the area. The building base is intended to relate to the scale of the streets and Terminal open and passenger unloading area, and would visually define the western edge of the Terminal open area.
Policy 5. "Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development." (p. 36)	See City Pattern, Policy 3, and Conservation, Policy 5, above. The project would be visible on the City skyline when viewed from areas such as Twin Peaks and Potrero Hill. The 385-foot project would be taller than nearby low-rise buildings to the south and west, which are generally under 60 feet in height; the buildings adjacent to the site on Mission in the project block range from 26 to 65 feet tall. The project would be taller than the 65-foot Terminal Plaza Building across First and Mission Streets from the site. At 385 feet, the proposed building would be shorter than the 600-foot Fremont Center, the 526-foot Tishman Building, and the 549-foot Chevron buildings.

(Continued)

TABLE 5: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE COMPREHENSIVE PLAN AND THE PROPOSED PROJECT (Continued)

URBAN DESIGN POLICIES	RELATIONSHIP OF PROJECT TO POLICIES
Policy 6. "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction." (p. 37)	See City Pattern, Policy 3 and Conservation, Policy 5 above. The project would be greater in bulk than older low-rise buildings in the vicinity. The maximum horizontal dimensions of the project would be comparable to those of nearby high-rise structures. The vertical glass bays and proposed setbacks of the tower are intended to visually reduce its apparent horizontal dimensions. The building would be smaller in scale than Fremont Center and larger in scale than the Terminal Plaza Building.

SOURCE: Urban Design Element, San Francisco Comprehensive Plan, 1971; Environmental Science Associates, Inc.

FIGURE 19:
PHOTOMONTAGE OF PROJECT FROM FIRST STREET AT ELIM ALLEY (LOOKING SOUTH)
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

▲
PROJECT

FIGURE 20:
PHOTOMONTAGE OF PROJECT FROM
MISSION STREET (LOOKING SOUTHWEST)
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

FIGURE 21:
PHOTOMONTAGE OF PROJECT FROM FREMONT STREET (LOOKING WEST)
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

The spatial characteristics of the Transbay Terminal open and passenger unloading area would be changed by the proposed project. That area, across First Street from the project, is dominated by a single building, the Transbay Terminal. The recently completed 600-foot-tall Fremont Center enclosed this open area on the north. The proposed project would continue this enclosure on the west. Although Transbay Terminal visually dominates the open and passenger unloading area by virtue of horizontal mass rather than height, further enclosure of the open and passenger unloading area by high-rise structures could shift visual focus away from the Terminal building. The project would more strongly define the western edge of the Terminal's open area. The project would be larger in scale and height than the Terminal Plaza Building, across the First and Mission Streets intersection from the site, and the adjacent low-rise buildings to the west of the site.

The project would change views for people coming from and going to the Transbay Terminal. The view west along Mission Street, presently defined by five- to eight-story buildings of similar mass, backed by the Pacific Telephone building, would be altered by the project. The proposed project would add to the visual effect of high-rise construction in the project area.

Project Visibility

The project tower would be visible from long-range viewpoints as well as neighboring buildings and street-level areas in surrounding blocks. The project would be visible from Twin Peaks and Potrero Hill as part of the Downtown office district (see Figure 22). The project would not be visible from Nob Hill due to intervening high-rise structures. From portions of the San Francisco - Oakland Bay Bridge the project would be visible in the cluster of high-rise structures west of the San Francisco waterfront and south of Market Street. Looking west from the 100 block of the Embarcadero at its intersection with Mission Street, the project would appear as another high-rise structure on the southern side of Mission Street, adding to the visual effect created by 101 Mission, 123 Mission, and Pacific Gateway. The project would appear as part of the downtown skyline's southern edge from southern approaches to the City, including the James Lick Skyway and Highway I-280. The project would be of lower height than most of the high-rise buildings seen in the southern skyline; it is intended to provide a visual transition from the lower buildings to the south to the highrises of Downtown (see Figure 22).

LEGEND

EXISTING BUILDINGS

- (A) 101 CALIFORNIA ST.
- (B) FREMONT CENTER
- (C) 77 BEALE (P.G.&E. BUILDING)
- (D) PACIFIC GATEWAY
- (E) ONE MARKET PLAZA

BUILDINGS APPROVED OR UNDER REVIEW

- (1) NEW MONTGOMERY PLACE (under construction)
- (2) 90 NEW MONTGOMERY (under construction)
- (3) 71 STEVENSON (under construction)
- (4) CENTRAL PLAZA (under construction)
- (5) **PROJECT** (under review)
- (6) 123 MISSION (under construction)
- (7) 135 MAIN (under construction)
- (8) 315 HOWARD (approved)

SOURCE

ENVIRONMENTAL SCIENCE ASSOCIATES, INC. AND SKIDMORE, OWINGS AND MERRILL - HOUSTON

FIGURE 22:

VIEW OF PROJECT AREA FROM POTRERO HILL

100 FIRST STREET

Views of the project from adjacent streets and buildings would include all or parts of the proposed tower. The project would obstruct views of the Bay to the east and south from the Pacific Telephone building on Second and Mission Streets and from the upper floors of the Chevron and Tishman buildings on Market Street. Views to the west from the lower stories of Fremont Center would also be reduced.

Proposed CalTrans Redesign of Transbay Terminal Passenger Unloading Area

The California Department of Transportation (CalTrans) has proposed to redesign the existing boarding, unloading and landscaped areas and bus ramp immediately north of Transbay Terminal. These changes would include replacement of the existing landscaped open area and taxi and bus driveways by three east-west bus driveways sunk nine feet below street level, directly under an elevated north-south pedestrian walkway (see Figure 23). The bus driveways, to cover about 80% of the existing bus ramp, open space and passenger unloading area, would be accessible to buses from First Street by ramps sloping at a six percent grade. Buses would exit on Fremont Street. The sidewalk along Mission Street would be widened from about 15 feet to about 25 feet, and landscaped. The 78-foot-wide elevated pedestrian walkway with associated seating areas, leading from the mezzanine level of the Terminal building above the proposed bus driveways to connect with a pedestrian bridge crossing Mission Street from Fremont Center, would cover about 20% of the existing unloading area. The center walkway would not be fully enclosed, but would be covered. Open, landscaped spaces of about 26 feet in width would flank the central 26-foot-wide walkway. These landscaped spaces would be approximately two feet higher than the walkway and contain small trees in planters with seating around them. Spiral stairs or escalators would lead to the Mission Street sidewalk and the bus driveways.

An observer at ground level at the project site looking east from First Street, would have a view down the bus driveways and directly onto the elevated walkway. Observers from upper project floors would look down upon the roofed walkway and bus driveways.

Funds to redesign the Terminal open and unloading area would come from the I-280 Interstate transfer fund ($17 million) and the State of California ($3 million). The design plans as established by CalTrans in cooperation with the San Francisco Bay Area Transportation Terminal Authority are temporarily suspended pending reconcilation between CalTrans planned transfer of Peninsula commuter rail service from Fourth

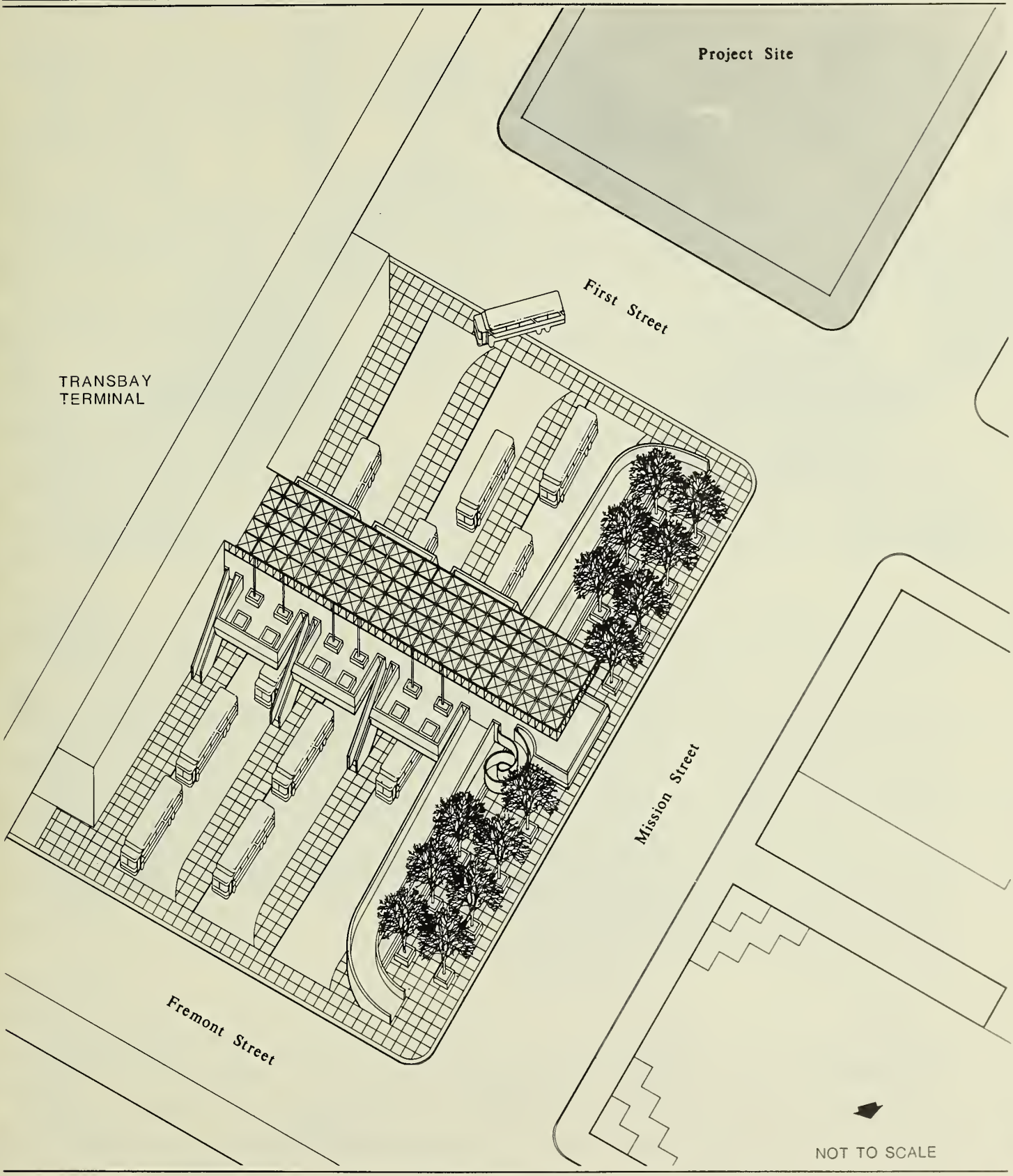


FIGURE 23:
CALTRANS PROPOSED
TRANSBAY TERMINAL
WALKWAY AND BUS RAMPS
100 FIRST STREET

SOURCE:
SKIDMORE OWINGS AND MERRILL - HOUSTON
BASED ON CALTRANS PLANS

Street to the Transbay Terminal with the Transbay Terminal's current function as a bus terminal. Final design decisions will be made by Caltrans, in informal consultation with the City of San Francisco./1/

At a later stage, CalTrans may add a second building level to the Transbay Terminal building and extend a transparent roof from the top of this level across the Terminal loading area to the Mission Street sidewalk.

NOTE - Urban Design and Visual Quality

/1/ Gary Cherrier, P.E., CalTrans, San Francisco, telephone conversation, June 27, 1984.

D. SHADOW AND WIND

SHADOW

A shadow analysis for the project was done for noon, 1:00 p.m. and 4:00 p.m. to reflect impacts during times of heaviest pedestrian use of sidewalks and of the Transbay Terminal and the partially landscaped passenger unloading area in front of the Terminal (see Figures 24-27, pp. 83-86). The analysis considers shadows cast by buildings existing on the site, as well as shadows from the 71 Stevenson (under construction) and 49 Stevenson (approved) buildings, indicating net new shadow that would be cast by the project. Open space in the vicinity includes: Tishman Plaza, on Market Street; Central Plaza open space, on Market and Fremont Streets; the Golden Gate University entry and seating area, and upper-level outdoor seating area, both on Mission Street; the Fremont Center retail plaza, fronting First Street; and the Mission Street open space and passenger unloading area for the Transbay Terminal. Project shadow impacts on the affected open spaces are discussed below.

CalTrans currently is considering plans to redesign the Terminal open and passenger unloading area to allow additional bus use and restrict pedestrians to the Mission Street sidewalk and an elevated bridge which would connect the Fremont Center building across Mission Street with the mezzanine level of the Terminal (see Section C of this chapter, p. 80, for a detailed description). The project's shadow impact on the proposed CalTrans walkway is analyzed after the following discussion.

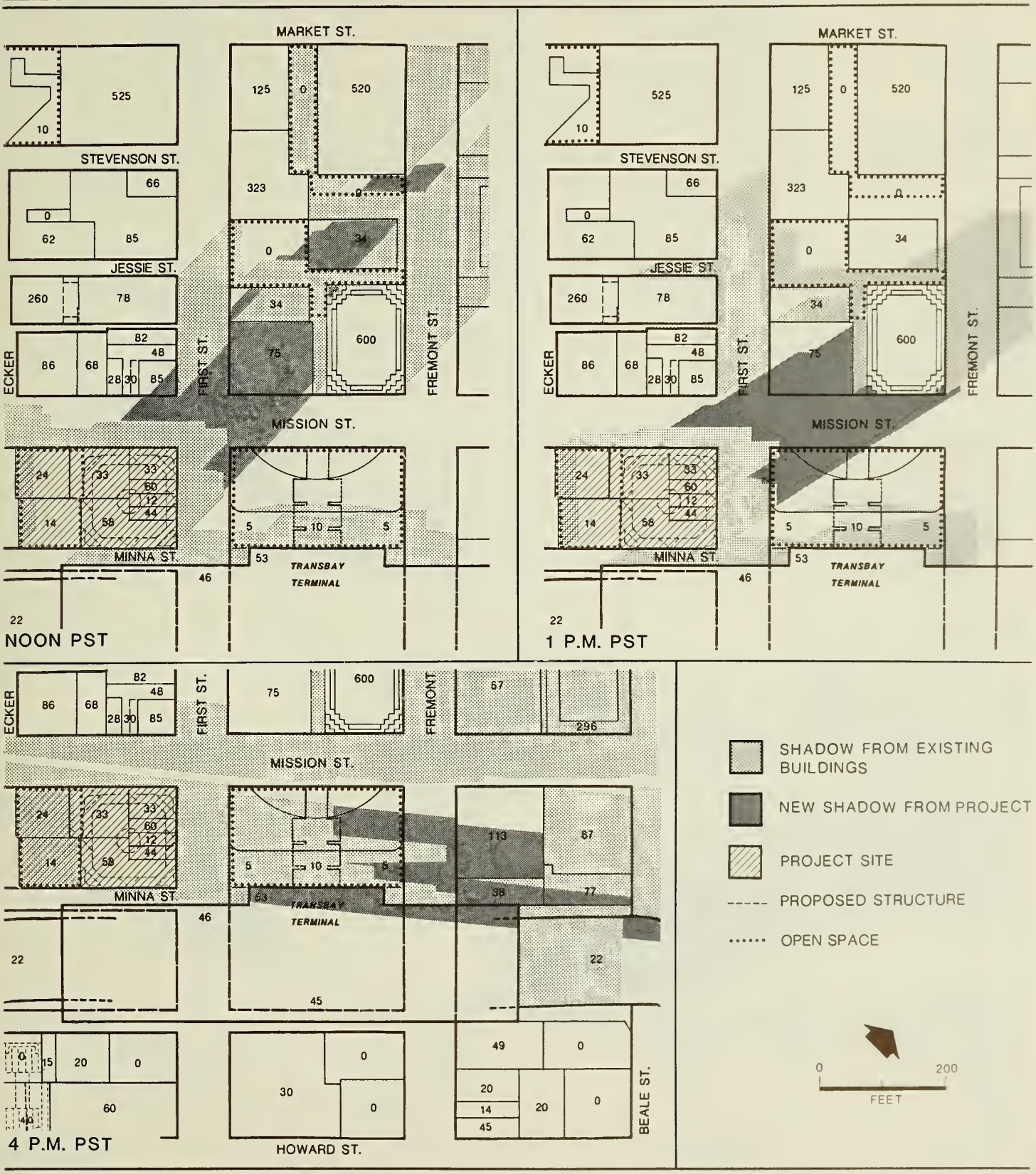


FIGURE 24:
PROJECT SHADOW PATTERN -
DECEMBER 21
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

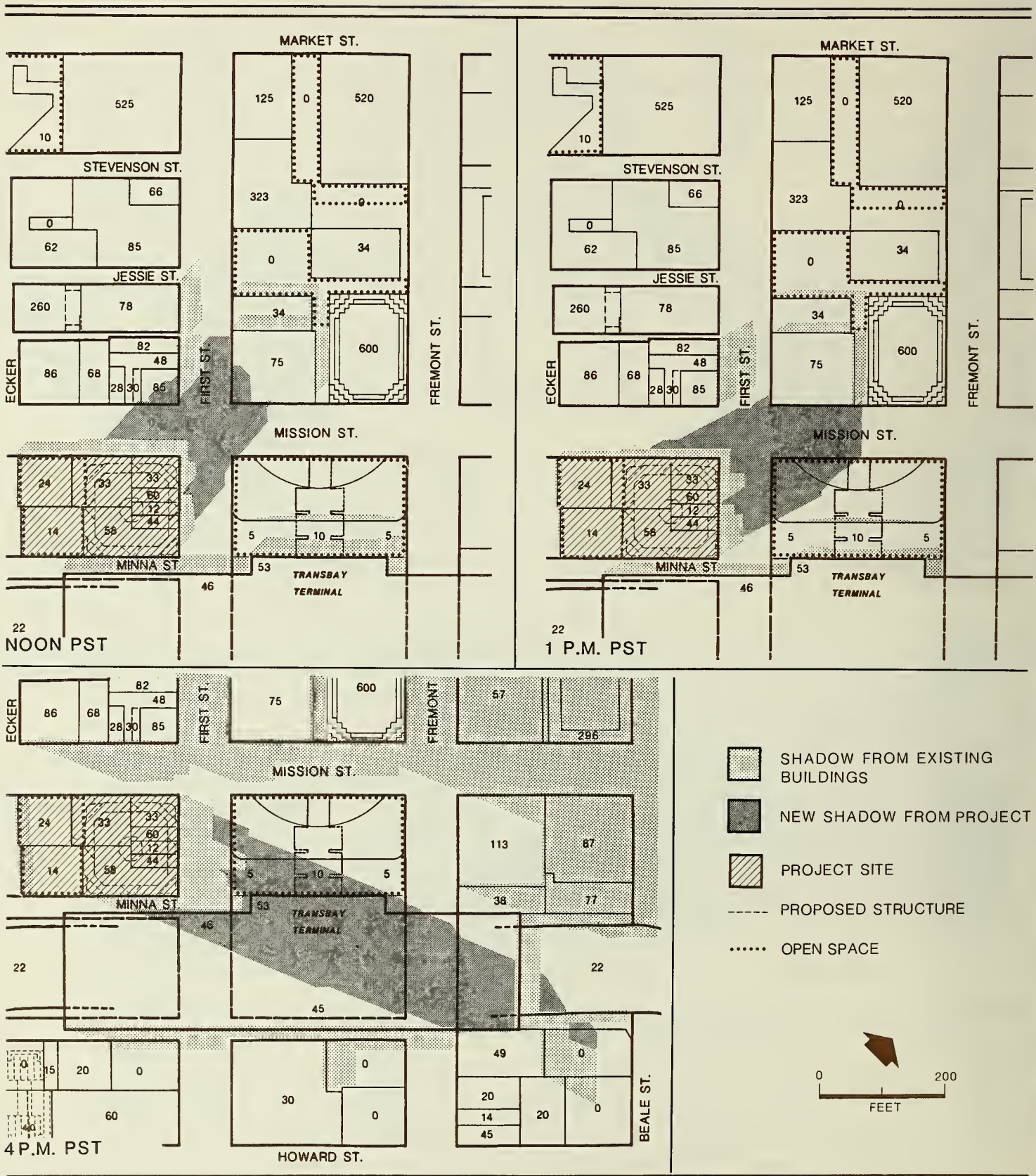


FIGURE 25:
PROJECT SHADOW PATTERN - MARCH 20
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

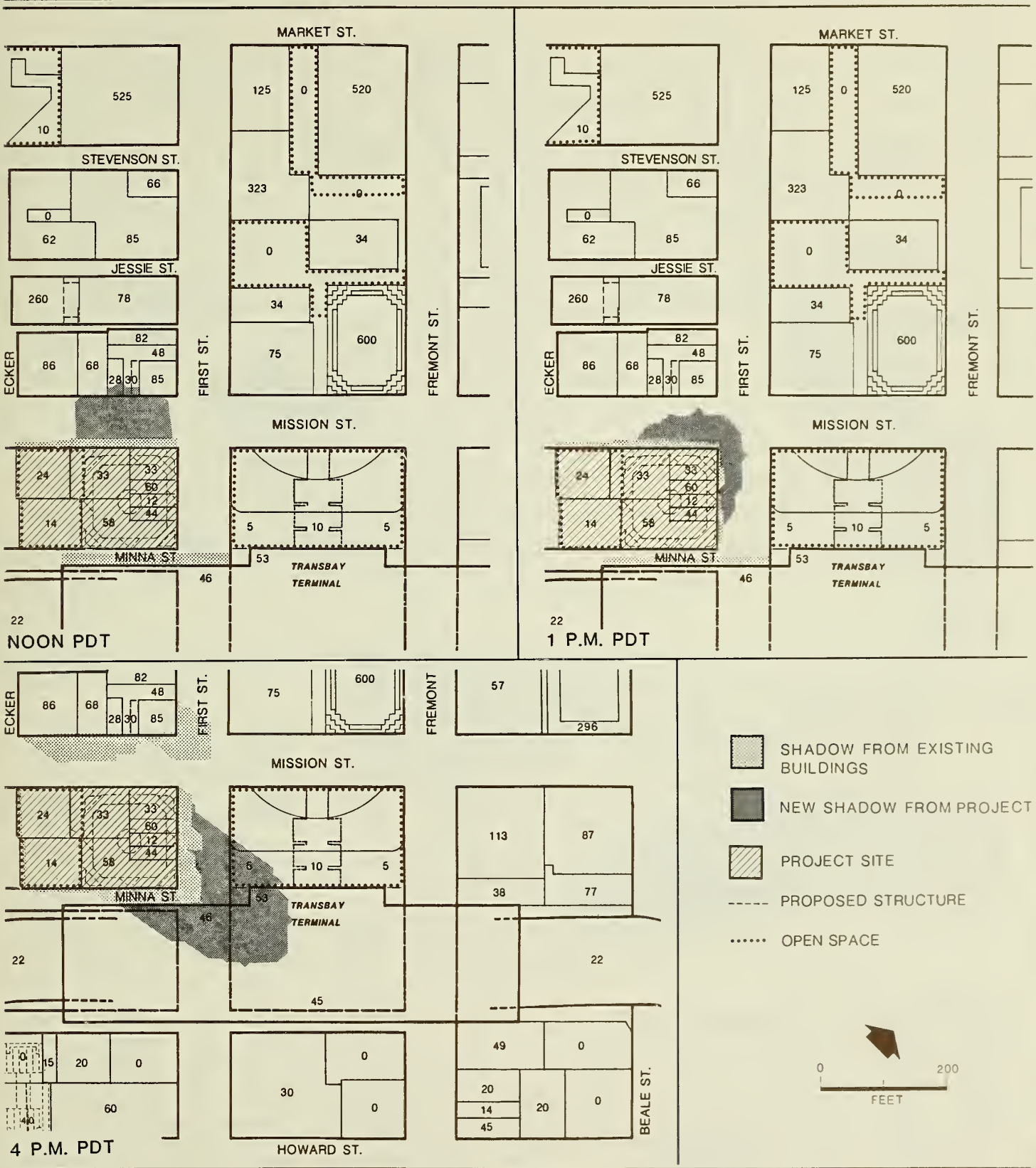


FIGURE 26:
PROJECT SHADOW PATTERN - JUNE 21
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

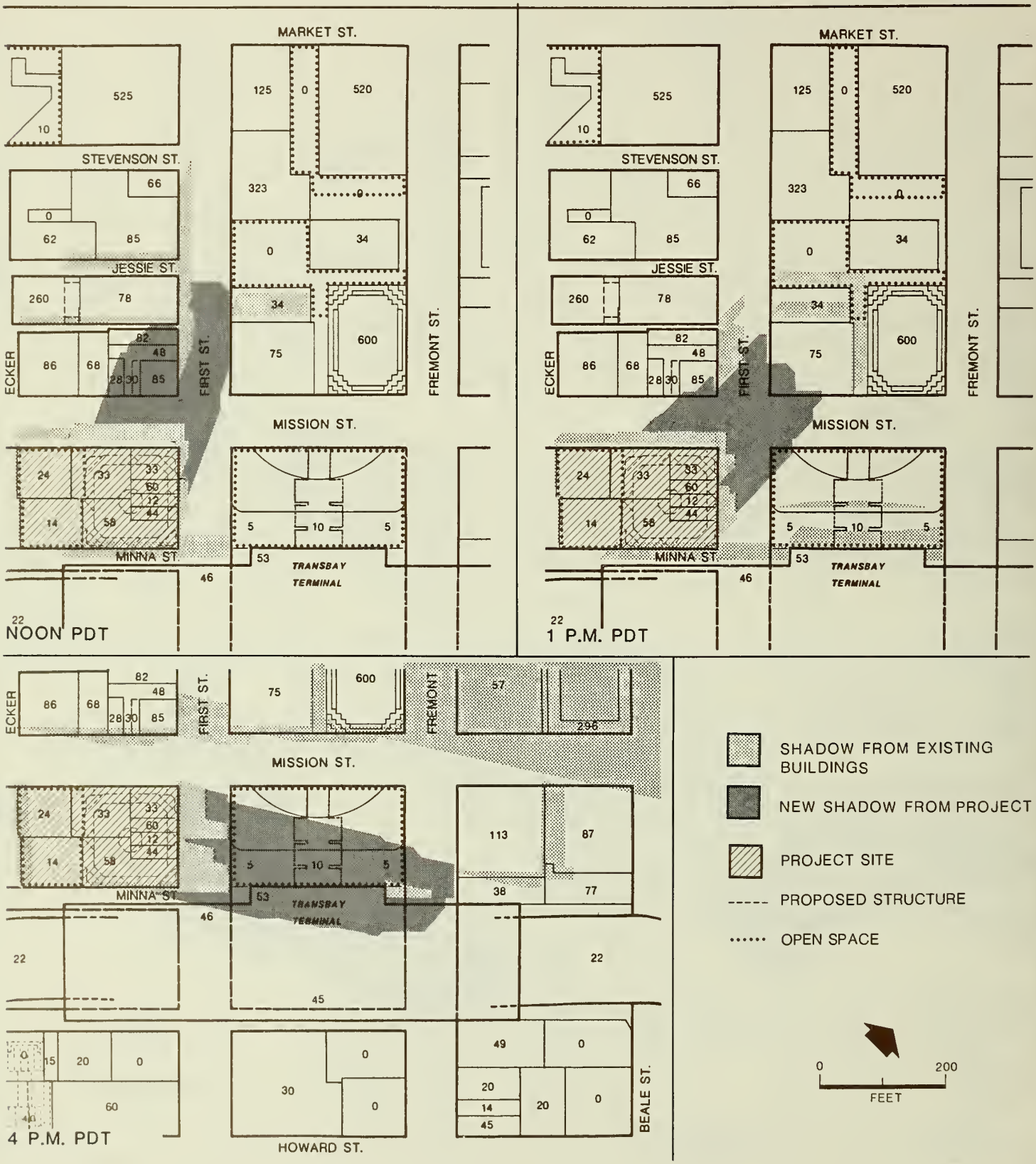


FIGURE 27:

PROJECT SHADOW PATTERN - SEPTEMBER 22

100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

Noon. From fall to spring, existing buildings on the site shade the adjacent sidewalks. In summer, when the sun is higher in the sky, the existing buildings shade the Mission Street sidewalk, but not the First Street sidewalk. During the winter (Figure 24, p. 83), the project would shade the northwestern tip (about five percent) of the Terminal open space and unloading area, the intersection of Mission and First Streets and about 15% of the Fremont Center retail plaza, as well as sidewalks on the north side of Mission Street and east side of First Street. The Central Plaza open space, fronting Market Street between First and Fremont Streets and immediately east of the Central Plaza buildings, would be shaded by the project only at noon during the winter, when about ten percent of the plaza walkway fronting Fremont Street would be shaded. During the spring (Figure 25, p. 84), the project would shade the corners of the Mission and First Streets intersection and portions of the sidewalks on the north side of Mission Street and east side of First Street. In the summer (Figure 26, p. 85), it would shade the sidewalk across Mission Street from the site. During the fall (Figure 27, p. 86), the project would shade the sidewalk across Mission Street from the site, part of the First and Mission Streets intersection, and portions of First Street and its east sidewalk north of Mission Street.

1:00 p.m. Existing on-site buildings shade the sidewalks fronting the project site all year. During the winter (Figure 24, p. 83), the project would shade the northwestern corner (about 25%) of the Terminal unloading area and a portion of the sidewalks on the east side of First Street and north and south sides of Mission Street across from the Terminal unloading area. During spring (Figure 25, p. 84), the project would shade more of the northwestern corner of the unloading area and less of the Mission Street and First Street sidewalks. During the summer (Figure 26, p. 85), no unshaded sidewalk or open space would be newly shaded by the project. In the fall (Figure 27, p. 86), the project would shade the northwestern tip (about five percent) of the Terminal unloading area and portion of sidewalks on the east side of First Street and north and south sides of Mission Street.

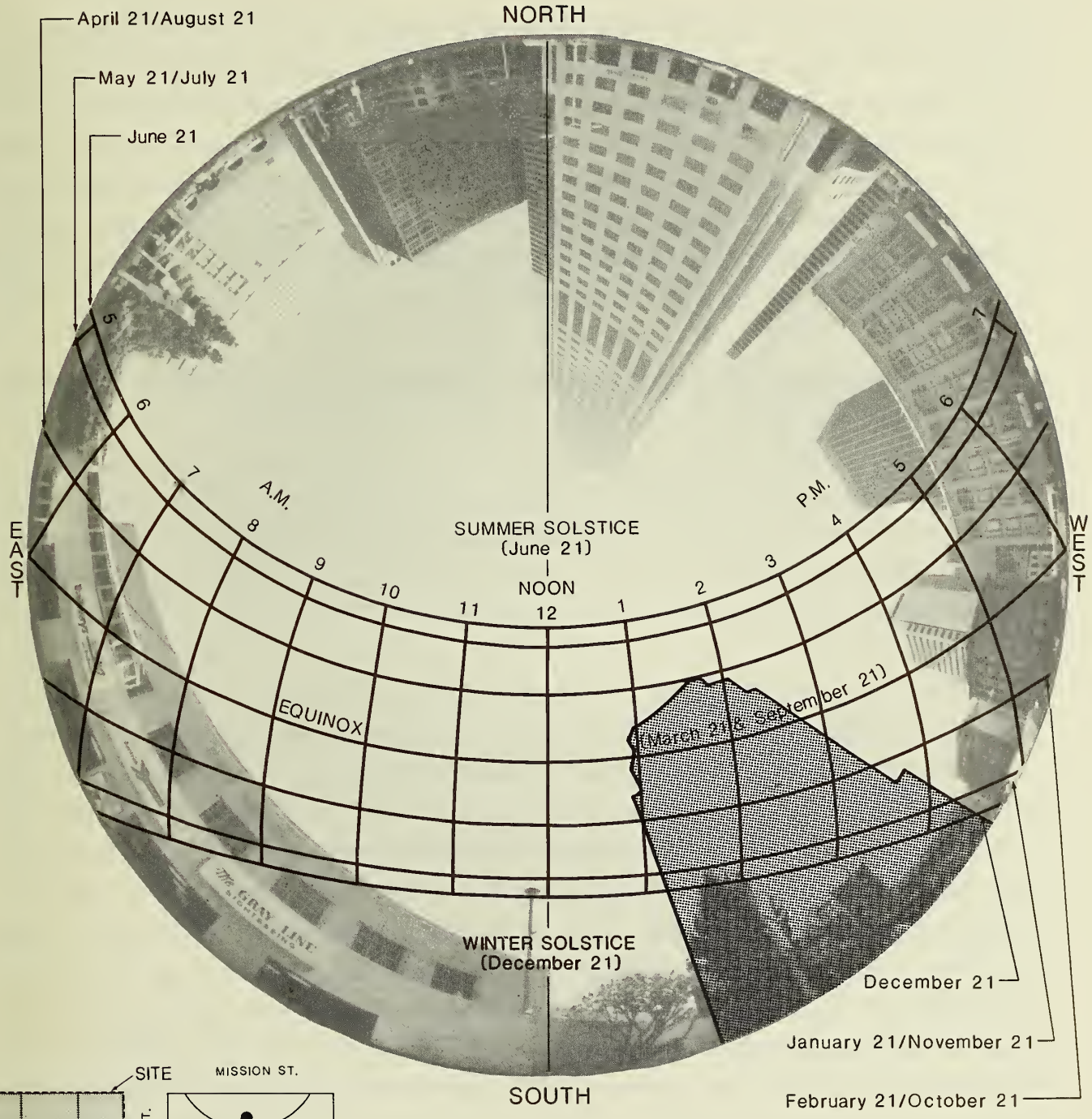
4:00 p.m. Existing buildings on the project site shade the sidewalk along the First and Minna Street project frontages all year, and parts of the Terminal unloading area during winter. During the winter (Figure 24, p. 83), when existing buildings on the site shade about 60% of the unloading area, the project would shade an additional 30% of the eastern part of the area; a strip along the northern edge of the unloading area would remain

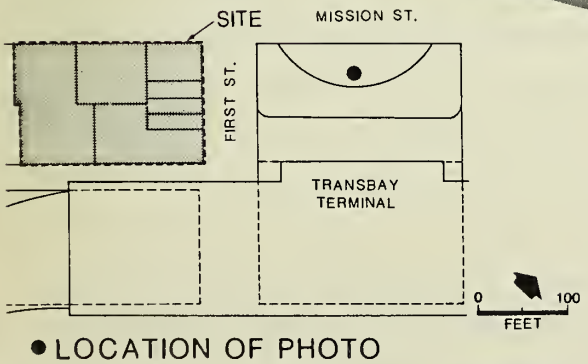
unshaded. During this time, the project would also shade most of the Fremont Street sidewalk between Mission Street and the Terminal. During the spring (Figure 25, p. 84), the project would shade about 40% of the unloading area. In the summer (Figure 26, p. 85), the project would shade a portion of the elevated bus ramp and the east side of First Street. During fall (Figure 27, p. 86), the project would shade the southwestern portion (about 60%) of the Terminal unloading area.

Open Space. The project would not shadow any properties under the jurisdiction of the Recreation and Park Commission (those covered by Proposition K). From about February through March, the project would shade a narrow strip (less than five percent) of Tishman Plaza, from about 8:30 a.m. to 9:00 a.m. Approximately 25% of the Golden Gate University (see Figure 15, p. 35) entry and seating area and all of the University's upper-level, outdoor seating area, both facing Mission Street, would be shaded by the project during summer mornings at about 8:30 a.m. In March and September, the project shadow would pass the area before 8:30 a.m.; the area would not be shaded by the project at any time in December.

A sun terrace is proposed as part of the project, on the western part of the site. About ten percent of the terrace would be shaded by the project tower on early winter mornings. At noon, about 20% of the sun terrace would be shaded and at 4:00 p.m. about 80% would be shaded by existing buildings west of the site. In spring, the project tower would shade the terrace from 7:30 to 10:00 a.m. Shadow from buildings west of the site would begin to reach the terrace after 11:00 a.m. and would increase to cover about 20% of the terrace at 4:00 p.m. In the summer, the project tower would shade the terrace at 7:30 a.m., with the shadow decreasing and leaving the terrace by noon. Buildings west of the site would shade less than five percent of the area at 4:00 p.m. In September, the project would shade about 50% of the terrace at 7:30 a.m., with the shadow leaving the area by 10:30 a.m. At noon less than five percent would be shaded by existing buildings. At 4:00 p.m. about 15% of the terrace would be shaded by existing buildings.

Sun path. An analysis of sunlight duration for an exposure location in mid-block at the north side of the open and passenger unloading area in front of the Transbay Terminal, is shown in Figure 28. A diagram of the sun's yearly path was superimposed on a fish-eye lens photograph of the sky. This diagram accurately depicts the time of day (expressed as local solar time, which is close to Pacific Standard Time), throughout the year, that direct





● LOCATION OF PHOTO

NOTE: Solar time from late April through late October would be one hour later due to Daylight Savings Time. Heavy solid lines are sun path lines.

OUTLINE OF PROJECT

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

FIGURE 28:
SUN PATH ANALYSIS
100 FIRST STREET

sunlight would reach that location, but creates an exaggerated visual image due to the distortion of the fish-eye lens. This technique differs from the shadow pattern analysis in that it does not predict the extent of shadow but rather the duration of sunlight and shade at one specific location. During the summer, the project would not shade this location at any time. Project shadows would occur at this location from about 1:00 p.m. to 2:30 p.m. during the spring and fall (one hour later during Pacific Daylight Time). During the winter, the exposure location would be newly shaded between 1:15 p.m. and nightfall. Existing buildings do not shade the exposure location at any time.

Project Shadow Impacts on the Proposed CalTrans Redesign of the Unloading Area North of the Transbay Terminal

CalTrans' proposed plans to redesign the unloading area call for a covered 78-foot-wide elevated walkway open on the sides, from the mezzanine entrance of the Transbay Terminal to Mission Street, to connect via a proposed pedestrian bridge, to the Fremont Center building.

The elevated walkway would bisect the block; buses would queue and load passengers beneath the walkway (see Chapter IV., Impacts, C., p. 80 and Figure 23, p. 81, for a more detailed description). There would be landscaped seating areas on both sides of the walkway; these areas are included as part of the walkway in the following shadow analysis. Existing buildings would shade about 95% of the proposed walkway on December afternoons. The project would not shade the planned walkway in the morning at any time of the year. Between 50% and 88% of the walkway would be shaded by its roof during that time. During winter, spring and fall afternoons, between seven percent and 82% of the walkway would be in new shadow cast by the project, the times of worst impact being early spring afternoons (average of 40% at 2:00 p.m. and 3:00 p.m.), middle of the afternoon in the fall (40% at 3:00 p.m. and 4:00 p.m.) and late winter afternoons (82% at 4:00 p.m.). The walkway would not be shaded by the project during the summer.

Summary

The greatest shadow impact throughout fall, winter and spring would occur during afternoons. From five percent to about 60% of the Transbay Terminal open and passenger unloading area would be newly shaded by the proposed project, with approximately all of the area shaded by the project and existing buildings at about 3:00 p.m. in winter, as the

worst case, with the shadow moving off and about 60% being shaded at 4:00 p.m. During the summer, minimal shading of the unloading area would occur. The project would shade a small part of the Central Plaza open space at noon during winter. The Golden Gate University seating areas, both on the ground-level and the roof level, would be shaded during summer mornings at about 8:30 a.m. Less than five percent of the Tishman Plaza would be shaded in February and March between 8:30 and 9:00 a.m. The project would shade part or all of the adjacent sidewalks on First and Mission Streets throughout the year.

WIND/1/

Wind-tunnel tests of localized wind speeds and directions at 27 surface locations at and near the project site were conducted using a scale model of the site, the project, and vicinity. The study included separate tests of northwest, west and southwest winds under existing conditions and with the proposed project. Because northwest, west and southwest winds are the most common in San Francisco, they are the most representative for evaluation purposes.

The comfort of pedestrians varies under different conditions of sun exposure, cool and warm temperatures, light and heavy clothing, and various wind speeds. For winds up to four miles per hour (mph), there is no noticeable effect on pedestrian comfort. For winds from four to eight mph, wind is felt on the face. Winds from 8 to 13 mph will disturb hair, flap clothing, and extend a light flag mounted on a pole. Winds from 13 to 19 mph will raise dust and disarrange hair. For winds from 19 to 26 mph, the force of the wind will be felt on the body. At 26 mph, the limit of agreeable wind on land is defined. In 26 to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over./2/

In view of the above information, a mean windspeed of 11 mph was selected as the comfort criterion and 26 mph as a wind hazard criterion. The proposed ordinances to implement the Downtown Plan (approved by the City Planning Commission on November 29, 1984) set comfort levels of 11 mph for areas of substantial pedestrian use and seven mph for public seating areas (Section 148). These Downtown Plan levels may not be exceeded more than ten percent of the time between 7:00 a.m. and 6:00 p.m. year round.

The project would cause winds to exceed 11 mph in some cases, as discussed below. No hazardous winds would be caused by the project.

Northwest Winds

Northwest winds blow approximately four percent of the time. Existing pedestrian-level wind speeds at the site and in the project area, as measured in the wind tunnel, are all within the 11-mph level, with the speed at most locations less than six mph (see Appendix E, p. A-49 - A-51, for more detailed information about existing and project winds). The large mass of buildings (mostly highrises) upwind of the project site probably reduces pedestrian-level wind speeds for northwest winds. The highest existing wind speeds (approximately 6.5 to 6.7 mph) are found on both sides of First Street at Elim Alley and diagonally across the intersection of First and Mission Streets from the site. Wind speeds on the open and unloading area in front of the Transbay Terminal range from about two to three mph.

The project would increase wind speeds at some locations and would decrease winds at other locations. Generally, pedestrian-level speeds would be similar to those currently found at the site. Winds in the vicinity would increase by about 1.3 mph or less; some would be reduced. Wind speeds would be slightly reduced in the western part of the Transbay Terminal open and unloading area, and slightly increased in the eastern part. All measured wind speeds would be below the 11-mph comfort level, with most less than five mph.

West Winds

West winds blow approximately 51% of the time. Measured existing pedestrian-level wind speeds at the site and on the Transbay Terminal open and unloading area are all within the 11-mph comfort level, with most less than five mph. The highest measured wind speeds, of about 6.1 and 6.2 mph, occur at the intersection of Mission and First Streets diagonally across from the site and at the east portion of the Transbay Terminal open and unloading area.

Pedestrian-level wind speeds similar to those currently found at the site and on the unloading area would occur with the proposed project. As with northwest winds, this would result from the large mass of buildings (mostly highrises) upwind, which in this case, is due west. Wind speeds would generally decrease in the eastern part of the Terminal

open and unloading area where benches are located and would generally increase in the western part. The winds would remain below seven mph. All measured wind speeds would be within the comfort level in the Downtown Plan, with most winds less than six mph.

Southwest Winds

Southwest winds occur less than 14% of the time. Measured existing pedestrian-level wind speeds at the site are all within the 11-mph comfort level. The highest wind speeds are found west of First Street along Mission and Minna Streets (both nearly align with the southwest wind direction) adjacent to the site. Winds on the south side of Mission Street adjacent to the site range from 8.2 to 9.4 mph; winds on Minna Street range from 5.2 mph to 9.7 mph. Wind speeds range from approximately four to ten mph on both streets. Wind speeds on the Terminal open and unloading area range from about 5.2 mph in the western part to 7.6 mph in the eastern part.

The proposed project would increase wind speeds on both Mission and Minna Streets, exceeding the 11-mph comfort level on both streets (this effect includes street trees to be planted on the Mission Street frontage). On the south side of Mission Street, winds at the corner of First Street would decrease by 2.1 mph to a speed of 6.1 mph and winds at mid-project on Mission would decrease by 5.3 mph to a speed of 4.1 mph, while winds at the northwest corner of the project site would increase by 3.3 mph to a speed of 12.6 mph. Across Mission Street from the project site, winds would increase by 3.0 to 5.1 mph to reach speeds of 7.9 to 12.0 mph. Winds on Minna Street adjacent to the site would increase by 0.7 mph to 6.2 mph to reach speeds of approximately nine to 15 mph. The highest wind speeds would be in the proposed truck loading area. Winds would decrease on Minna Street west of the project. The increases in wind speeds on Minna Street fronting the site would be caused by funneling of the wind between the proposed project and the curving, elevated on-ramp from the Transbay Terminal to the southeast of the project, and by the proposed 524 Howard Street project, south of the site. At the entrance to the Transbay Terminal at the top of the ramp, winds would decrease from about seven mph to three mph. This location would be the entrance to the Terminal from the walkway that is proposed by CalTrans. Winds on the Transbay Terminal unloading area would increase by 2.0 to 3.1 mph on the west portion and decrease by 1.4 to 2.5 mph on the east portion, and would remain within the 11-mph level. No Muni bus stops in the immediate vicinity would be adversely affected.

A large wind shear (a 8.5 mph difference in wind speeds in a less than 75-foot distance) on Mission Street adjacent to the project site would cause annoyance to pedestrians walking along Mission Street. Pedestrians would experience this as a sudden, strong gust of wind as they passed this area.

The 11-mph comfort level would also be exceeded at the corner of the Transbay Terminal block, across First Street from the project. There, the winds would be increased by 4.5 mph to a speed of 11.2 mph. This is a heavily used pedestrian area, because it is a major access to the Terminal.

Although wind speeds would meet the 11-mph comfort level, another wind shear, at the corner of Minna and First Streets, would be expected to annoy pedestrians walking there. This effect would occur at the corner of the proposed project and would be experienced as a gust of wind as the pedestrian reached the corner.

The comfort level of 11 mph would be exceeded in four locations for southwest winds.

Summary

Section 148 of the proposed ordinances to implement the Downtown Plan specifies that development must "not cause ground level wind currents to exceed, more than 10% of the time year round, between 7:00 a.m. and 6:00 p.m., the comfort level of 11 mph equivalent wind speed in areas of substantial pedestrian use." The wind testing methodology is being refined to produce a single value for wind velocity to determine compliance with Section 148. For west and northwest winds, all winds would be less than 7.2 mph. For southwest winds, wind speeds on Mission and Minna Streets would increase, with wind speeds at four locations exceeding the 11-mph comfort level. One of the four locations is on Minna Street, an area that would not receive substantial pedestrian use with the project. Wind speeds on the open and unloading area in front of the Terminal would generally remain in the same range as existing winds for all three wind directions. If the project were to exceed the Downtown Plan criteria, it would have to seek an exception under Section 148(a) and 309 of the proposed ordinances.

The project would include features to reduce the speeds of southwest winds to those discussed above, as follows: the building tower would be set back 15 feet from the Mission Street property line and street trees would be planted to reduce winds on Mission

Street. Southwest winds could be further reduced by planting street trees on the north side of Mission Street, if desired by the City, and placing a newspaper kiosk at the southeast corner of First and Mission Streets to reduce wind speeds at that corner, should CalTrans agree. A smaller building with a greater setback on Minna Street would further mitigate southwest wind effects. Future high-rise development directly upwind to the southwest (true) of the project could also improve the wind environment in the project area.

NOTE - Shadow and Wind

/1/ This section is based on a study entitled Wind-Tunnel Studies of the 100 First Street Building, June 1984, prepared by Bruce White, Ph.D. as a private subconsultant to Environmental Science Associates, Inc. A summary of the report is included in Appendix E, p. A-49 - A-51, and the complete report is on file at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

/2/ Lawson, T.V., and A.D. Penwarden 1976 "The effects of wind on people in the vicinity of buildings," Proc. Fourth International Conference Wind Effects on Buildings and Structures, London, 1975, Cambridge University Press, Cambridge, U. K., 605-622.

E. TRANSPORTATION, CIRCULATION AND PARKING

DEMOLITION, EXCAVATION, AND CONSTRUCTION TRAFFIC/1/

During the estimated 21-month construction period, transportation impacts would result from truck movements to and from the site during demolition, excavation, and construction activity. Demolition would require about nine weeks and would generate an average of 30 truck movements per day in or out of the project site, between 9:00 a.m. and 3:30 p.m. Excavation would require about six weeks and would generate an average of 25 truck movements per day in or out of the project site, between 9:00 a.m. and 3:30 p.m. Trucks would use First Street to reach the freeway and would haul debris and excavation materials to a disposal site in South San Francisco. Construction activities (steel erection and finishing) would generate an average of 15 truck movements per day during the 18-month period. Deliveries of materials would occur between 9:00 a.m. and 3:30 p.m.

Primary construction truck access to the site is proposed to be from Mission Street with secondary access from Minna Street. During the construction period, the sidewalks fronting the project site on Mission, First and Minna Streets would be closed. The

curb lane on Mission and First Streets would also be closed to provide a pedestrian detour. Closure of the Mission Street curb lane would temporarily displace four metered parking spaces and a loading zone. The First Street curb lane in front of the site is currently a multiple-coach Muni stop. As mentioned in Chapter III, Setting, E., p. 48, the City is planning to move the Muni stop on First Street (in front of the site) to a loading island that is under construction in the middle of First Street between Minna and Natoma Streets (the stop would be moved about 200 feet south of its current location)./2/ Because the island is nearing completion, Muni is expected to move the coach stop prior to construction of the project; thus, closure of the First Street curb lane in front of the project site would not be expected to interfere with Muni operations on First Street. Lane and sidewalk closures are subject to review and approval by the Department of Public Works. Materials storage is proposed to be off-site, and would generate construction vehicle trips to the site; these trips are included in the projections above. Temporary parking demand from construction workers' vehicles, and impacts on local intersections from construction worker traffic, would occur in proportion to the number of construction workers who would use automobiles. The location of the site across First Street from the Transbay Transit Terminal with convenient access to Muni, A-C Transit, SamTrans, and Golden Gate Transit could result in fewer construction workers driving to the site; parking demand generated by construction workers would thus most likely be less than at other sites in the downtown.

The impact of construction truck traffic would be a slight lessening of the capacities of access streets and haul routes because of the slower movements and larger turning radii of trucks. Lane blockage on Mission Street by queued trucks, if it were to occur, would reduce the capacity of this street and would interfere with the operation of the diamond transit lane. Blockage during times of peak traffic flow would have greater potential to create conflicts than during nonpeak hours because of the greater peak-hour numbers of vehicles in adjacent lanes and vehicles (autos and buses) that would have to maneuver around the queued trucks. If construction of Central Plaza were to occur concurrently with construction of the proposed project, congestion on Mission and First Streets would be increased.

PROJECT IMPACTS

Travel Demand

On the basis of land use, the project would generate about 5,980 net new person trip-ends (pte) per day./3/ Travel generated by existing office and retail uses on the project site (about 3,520 pte per day) has been subtracted from the total new travel (about 9,500 pte per day) from the site to give the net new travel from the project./4/ The trip generation calculations include travel to and from the project site by both visitors and employees of the project. Additionally, although expressed on a person trip-end basis, the trip generation include all travel to and from the project in autos, service vehicles and trucks, on public transit and other modes (ie. walking, bicycles, taxis, etc.). Projected outbound (peak commute direction) p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 6. About 1,070 new outbound trips from the project would occur during the p.m. peak-period, of which about 670 would occur in the p.m. peak hour./5/

Assignments to travel modes for the project have been made on the basis of modal splits from the Downtown Plan EIR (EE 81.3) for the years 1984 and 2000./6/ The 1984 modal split has been used for the purpose of identifying impacts at the single-project level (as opposed to impacts at the cumulative level). The year 2000 modal splits have been applied to the project travel for the purpose of comparing project travel with cumulative future travel demand on the transportation system serving San Francisco (see Regional Cumulative Impacts, pp. 106-124). The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and thus represent an average condition. The actual modal split for travel from the project may vary from the C-3 District average. However, because the travel demand forecasts used to derive the average modal split data include the travel from the project, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

Parking demand was projected for the 100 First Street project on the basis of the estimated vehicle traffic generated by the project. The project's land uses would create net new demand for about 330 long-term spaces and 10 short-term spaces, for an equivalent net new daily demand of 340 spaces.

TABLE 6: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM 100 FIRST STREET (pte/a/)

Travel Mode	P.M. Peak Period/b/ 1984	P.M. Peak Period/b/ 2000/c/	P.M. Peak Hour /b/ 1984	P.M. Peak Hour /b/ 2000/c/
Drive Alone	200	170	130	110
Car/Vanpool	190	180	130	140
Muni	320	300	170	150
BART	190	240	130	150
A-C Transit	70	70	50	40
SamTrans	20	20	10	10
SPRR (Caltrain)	20	20	10	20
GGT Bus	40	50	30	40
Ferry	10	10	10	10
Walk Only	-10 /d/	-10 /d/	-10 /d/	-10 /d/
Other	20	20	10	10
TOTALS (rounded)	1,070	1,070	670	670

/a/ Person trip-ends.
/b/ The peak hour occurs during the two-hour peak period of 4:00 to 6:00 p.m.
/c/ The year 2000 modal split accounts for changes in travel behavior which are assumed to occur as a result of growth in downtown San Francisco.
/d/ The net decrease in retail space on the project site from the existing condition would create a reduction in the number of peak-period and peak-hour pedestrian trips at the site.

SOURCE: Environmental Science Associates, Inc.

The project would relate to several objectives and policies of the Transportation Element of the San Francisco Master Plan./7/ The project would respond to Objective 1, Policy 7, to "seek means to reduce peak travel demand." As required by Section 163 of the proposed ordinances, a member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program, such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak-period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART, Muni, and other carriers' passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information.

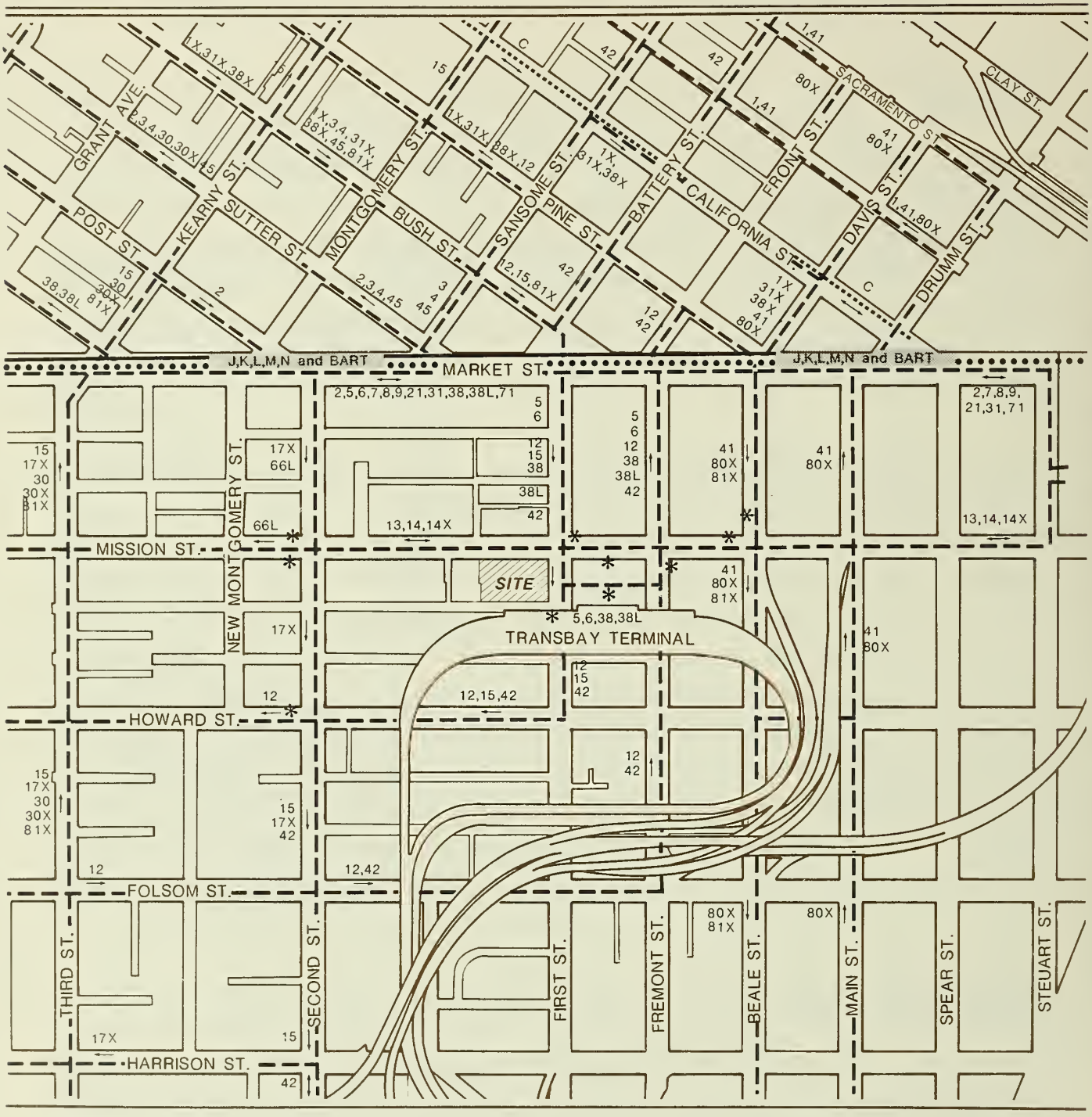
Local Transit

The location of the project site across First Street from the Transbay Transit Terminal provides for access to at least ten Muni routes that either stop just south of the project on First Street or on Mission Street in front of the Terminal. Muni Metro and BART service in the Market Street subway are accessible via the Montgomery Street station. Figure 29 shows Muni and BART routes in the project area. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in Appendix D, Figures D-1, pp. A-40 - A-42.

As shown in Table 8, p. 113, Muni operations in the four corridors of San Francisco are currently in Level of Service D and E and BART is shown to be operating currently at Level of Service F transbay and in Level of Service D in the westbay. Table D-1, Appendix D, p. A-39, contains descriptions of the various Levels of Service for bus transit. In the p.m. peak hour, the project would generate about 170 new Muni trips and about 130 new BART trips outbound from the project site. Addition of the project p.m. peak-hour Muni riders to the existing (1984) Muni ridership would increase the loading ratios on Muni in the northwest and southwest corridors to 1.26 and 1.46, respectively, but would not change the Level of Service (from E). Muni riders from the project would not be sufficient to affect Muni operations in either the northeast or southeast corridors. Addition of BART riders from the project to the existing BART ridership would increase the p.m. peak hour transbay loading ratio to 1.54 (Level of Service would remain F); the project's BART riders would not change the westbay loading ratio or Level of Service.

Transit Corridor Analysis

The project would contribute to increases in transit ridership in the major transit corridors leading from downtown San Francisco. Existing peak-period and peak-hour transit ridership (see Table 8) would be increased by 0.2% to 0.9%, with the greatest increases from the project riders occurring in the Muni northwest corridor. Ridership increases of this magnitude would not be measurable against the day-to-day fluctuations in transit ridership and would not have a noticeable effect on transit levels of service. Transit impact caused by cumulative development are discussed in the Regional Cumulative Impacts section, pp. 112-117.



LEGEND

- BART AND MUNI METRO STATION
- BART ROUTE
- MUNI METRO ROUTE
- BUS ROUTE
- CABLE CAR ROUTE
- 1,2,3,J,K,L ROUTE DESIGNATION
- ROUTE DIRECTION
- * BUS STOP (within about one block of site)

0 500 FEET

FIGURE 29:
MUNI AND BART ROUTES
IN THE PROJECT AREA
100 FIRST STREET

SOURCE
MUNI SAN FRANCISCO STREET & TRANSIT MAP, JUNE 1984

Project Transit Costs

Muni. The estimated 1981-82 (most recent available) net marginal cost (or increase in the deficit for Muni operations) per additional ride is $0.50./8/ This deficit-per-ride figure, because it is a marginal cost, is appropriate for small increases in Muni ridership (such as that requiring one or a few additional vehicle trips). Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average costs. It is reasonable to conclude that average costs would be significantly higher than marginal costs.

The project would generate about 148,700 peak-period rides per year, which would generate a cost deficit to Muni of about $74,300./8/ This conclusion should be qualified because the Muni deficit-per-passenger-trip figure is based on 1981-82 data, and because the total project-generated deficit is calculated only for those riders who use Muni as their primary mode of transportation, excluding riders who would use a combination of transportation carriers, such as Muni and Caltrain. More recent data that would allow a more precise estimate of costs are not available. The project would offset this deficit through its contributions to the General Fund, the Transit Impact Development Fee, and sales tax revenues.

On April 27, 1981, the San Francisco Board of Supervisors approved Ordinance 224-81 to assess new downtown commercial development to support Muni. The ordinance established a one-time fee of up to $5.00 per gross square foot upon construction of new downtown office space, to provide funds for operating costs and capital improvements for Muni transit services. On September 27, 1984, the ordinance was upheld in San Francisco Superior Court. Under the ordinance, the project would generate up to about $2.2 million in one-time fee revenues to Muni. This fee is intended to recover additional transit costs for the entire economic life of a building, and thus cannot be compared directly to the annual Muni deficit discussed above. However, the fees collected under the ordinance would reduce the amount of General Fund revenue support necessary for existing and future Muni operations.

The project would also offset the Muni deficit through its contributions to General Fund revenues, which would be derived from a variety of taxes levied on the proposed project. In the past, a portion of General Fund revenues have been allocated to Muni. The historical level of contribution of General Fund revenues to Muni may change, however,

due to the recent court decision upholding of the Transit Impact Development Fee. Because of the variable relationship of the sources from which Muni receives operating funds, the annual General Fund contribution from the project to Muni cannot be quantified.

General Objective 1, Policy 6 of the Transportation Element states as a goal to "develop a financing system for transportation in which funds may be allocated without unnecessary restriction for priority improvements according to established policies." (p. 10) The project sponsor has agreed to participate in legally adopted funding measures for Downtown transit funding, proportional to demand created by the project.

BART. For the 1983-84 fiscal year, the average net operating deficit per passenger trip for BART was about $1.06./9/ On the basis of about 289,800 rides per year, the estimated annual BART deficit attributable to the project would be about $307,200./10/ The project would generate a total of about $15,700 in revenues to BART, including about $4,800 in property tax revenues, and about $10,900 from the 75% of the 0.5% transit sales tax allocated to BART. This amount does not include the remaining 25% of the 0.5% BART sales tax revenue distributed by MTC among BART, Muni and A-C Transit. After subtraction of BART's revenues from sales and property taxes that would be generated by the project, the net operating deficit of BART due to the project would be about $291,500. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future.

Pedestrian Movements

The primary pedestrian entrance to the building on First Street would provide access to the lobby and escalators serving the second level, where elevators serving upper office floors would be located. A second entrance to the lobby would be provided on Mission Street. Entrances to ground-floor retail space would be provided from both Mission and First Streets. A stairway from the Mission Street vest pocket park would provide access to the sun terrace atop the parking garage. The terrace would have direct access to the second-floor office lobby and restaurant. Additionally, access would be provided to the parking garage directly from the first-floor lobby.

The project at full occupancy would generate about 260 additional pedestrians on sidewalks fronting the site during the 15-minute peak-period of the noon hour, and about

180 additional pedestrians during the p.m. 15-minute period. Pedestrian travel destinations were estimated on the basis of projected major travel modes. Pedestrian trips were assigned to sidewalks and crosswalks on the basis of these destinations.

Operating conditions on sidewalks and crosswalks have been evaluated in terms of pedestrian flow categories or regimen, which relate the density of pedestrians in a specific time period (pedestrians per foot of clear sidewalk width per minute) to the quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk)./11/ Appendix D, Table D-2, p. A-43 shows the relationships among flow rates, walking speed, path choice, and interaction among pedestrians for each flow regime. Appendix D, Figure D-2, pp. A-44 - A-46, shows photographs of sidewalk conditions for each flow regime. Typically, an upper limit for desirable conditions is 14 pedestrians per foot per minute (p/f/m), defined as crowded, although conditions as high as 18 p/f/m, a congested condition in which pedestrians are subjected to extreme crowding, have been documented./11/

Table 9, p. 119, summarizes pedestrian flow conditions on sidewalks and crosswalks adjacent to the site at the intersection of First and Mission Streets. The sidewalks and crosswalks adjacent to the project site currently operate in unimpeded and impeded conditions during both the noon-peak 15-minute period and 15-minute p.m. peak period./12/ Conditions on the sidewalks and crosswalks adjacent to the project following addition of the project pedestrian travel to the existing (1984) volumes would be in the lower end of the impeded range during both the noon and p.m. peak 15-minute periods, except for the crosswalk across First Street which would continue to operate in the upper end of the impeded range. Although conditions would be in the impeded range, there would continue to be adequate facilities for pedestrians on the sidewalks adjacent to the project.

On the ground floor the project would be set back from Mission Street 15 feet to provide a pedestrian arcade on Mission Street. Although the pedestrian arcade would increase the total sidewalk width by 15 feet, the effective width of the Mission Street sidewalk would increase by about seven feet, because proposed street trees and pillars to be installed as part of the arcade would restrict some movement. Because the data shown in Table 9 has been calculated on the basis of existing sidewalk widths, the additional width that would be provided by the pedestrian arcade would return conditions on the Mission Street sidewalk during noon and p.m. peak 15-minute periods to the unimpeded range with addition of the project pedestrian travel.

Although the sun terrace would be expected to attract noontime pedestrian travel, pedestrian trips generated by the terrace, on the sidewalks adjacent to the project, would not be expected to affect the operating conditions on these sidewalks. In the data shown in Table 9, p. 119, the pedestrian travel generated by the project has all been assigned to the sidewalks adjacent to the project. Because it is likely that project employees would use the direct access between the building and the terrace, and thus not use the adjacent sidewalks, it has been assumed that the effects of any new pedestrian travel attracted to sun terrace from outside the project would be offset by the double-counting of project employees who would use the direct access to the terrace.

The project would conform with Downtown Plan policies "to provide sufficient pedestrian movement space" by providing a pedestrian arcade on Mission Street. The Plan also has a policy to "encourage" arcades on the north (project) side of Minna Street. Minna Street, as noted in the Setting, is designated a Pedestrian/Service street. The project, in conforming with the Downtown Plan policies to locate service and loading areas on alleyways (service streets), would not change the existing character of Minna Street. It would not provide an arcade on Minna Street.

A pedestrian bridge is proposed from the Fremont Center across Mission Street to the Transbay Transit Terminal. The pedestrian bridge would allow Terminal commuters to cross Mission Street without conflicting with vehicle traffic. Because of the project's location across First Street from the Transbay Transit Terminal, the sidewalks fronting the project site would not be substantially affected if the proposed pedestrian bridge were built. The bridge would most likely reduce some of the pedestrian volumes crossing Mission and First Streets, both in those crosswalks adjacent to the project site and in the crosswalks on the opposite side of the intersection. As the conditions shown in Table 9 are calculated on the basis of the existing pedestrian network, any decrease in crossing volumes as a result of a pedestrian bridge would result in better conditions than those shown in Table 9. The status of the bridge, to be built by CalTrans, is uncertain at this time.

Local Intersection Traffic

The project would retain an existing 85-space parking facility that is accessible via Mission Street. Because the project would change neither the number of spaces nor the

method of operation of the garage, traffic generated by the project would not be expected to affect operations at intersections adjacent to the project site. Although there could be a slight increase in traffic at the adjacent intersections from vehicles picking up or dropping off passengers and from loading and service vehicles as a result of the project, such increases would not be measurable against the daily fluctuations in traffic.

Freeway On-Ramp Analysis

Traffic operations for two intersections serving freeway on-ramps near the project site are shown in Table 10, p. 120). During the p.m. peak hour, the intersection of Mission and Beale Streets currently operates in Level of Service E conditions. The intersection of First and Harrison Streets currently has Level of Service F conditions during the p.m. peak hour. Operations at Levels of Service E and F represent unacceptable delay to motorists. Queues of vehicles are present during the p.m. peak hour on the approaches to the on-ramp at First and Harrison Streets. Vehicles from the project would be expected to contribute to the existing jammed conditions at this intersection. The project effects at the intersection of Mission and Beale Streets would not be sufficient to change either the v/c ratio or Level of Service during the p.m. peak hour.

Freeway Corridor Analysis

The project would contribute to increases in traffic on the major freeways serving downtown San Francisco. Traffic generated by the project would increase total traffic on major freeways during the p.m. peak period and the p.m. peak hour by about 0.2%. Such increases would not be measurable against the day-to-day fluctuations in traffic volumes. Because the Bay Bridge eastbound traffic flow is functionally at capacity, the travel demand from the project would not be expected to increase the flows on the Bay Bridge in the peak hour; rather the East Bay-bound auto traffic from the project would most likely compete with and possibly displace existing users of the Bay Bridge into later portions of the peak period. This competition for access would occur at the on-ramps to the Bay Bridge and any displacement of existing users to later time periods would depend upon the time of arrival of project vehicles at the on-ramps. Freeway impacts caused by cumulative development are discussed in the Regional Cumulative Impacts section, pp. 118-124.

REGIONAL CUMULATIVE IMPACTS

To date, cumulative analysis of transportation impacts has been conducted on the basis of a list of proposed development in the greater downtown area (see Table C-3, Appendix C, p. A-35, for the March 10, 1984 list of these projects). The Downtown Plan EIR method is a refinement of the transportation analysis process that uses forecasts of employment growth, independent of a list of proposed projects, to project future travel./13/

The travel data presented in the Downtown Plan EIR transportation sections (and in the transportation analyses for this report) are projections of total demand on the transportation system serving San Francisco. The projections comprise three components of travel demand. Two of the components were developed through an intricate travel modelling process for the C-3 District of San Francisco. These first two components of travel demand are C-3 District work (employee journey to and from work) travel and C-3 District non-work (all other) travel. The third component is non-C-3 District travel, which was forecast through an analysis of regional trends adjusted for the effect of development in the C-3 District. Non-C-3 travel is defined as travel that has neither an origin nor a destination in the C-3 District. Thus, non-C-3 travel includes travel to and from other parts of downtown and trips through San Francisco from other parts of the region. Employment forecasts are not specifically used in the non-C-3 travel analysis.

Because of the magnitude of the information contained in the Downtown Plan EIR, it is necessary to summarize portions of that information in this document so that there may be a better comprehension of the cumulative transportation projections. The following discussion highlights the basic points of the cumulative future travel demand projections. Additionally, because the City has been using a cumulative list-based method to analyze cumulative impacts, a comparison of the list method and the Downtown Plan EIR method is included below. This section also shows the results of the impact analysis using the list-based method.

Summary of Downtown Plan EIR Method. The Downtown Plan EIR method projects future travel on the basis of modal splits that are assumed to change over time in response to transit service improvements and to increased levels of peak-period congestion on auto facilities. The transit service improvements assumed to occur by the year 2000 correspond to the vehicle acquisition portions of the Five-Year Plans for Muni,

A-C Transit, SamTrans, CalTrain, and Golden Gate Transit. For BART, both the vehicle acquisition program and the trackage improvements (Daly City Turnback/Storage Facility and the KE track, also known as the "Oakland Wye") were assumed to occur.

The Downtown Plan EIR transportation analysis also assumes that regional auto use will continue to change over time in response to increasing levels of congestion on the bridges and freeways serving the City. The analysis projects a shift from single-occupant auto use (drive alone) for commuting to ridesharing (carpool, vanpool) and to transit use. The assumptions of continuing shift from auto to transit and ridesharing, most apparent in the year 2000 modal splits, are made on the basis of long-term trends in transit use in the San Francisco commute corridors. Census data show that in the period 1970 to 1980, transit use for commuting to downtown increased. Similarly, Bay Bridge data show that ridesharing has been increasing over the last seven years./14/ Thus, the shift to transit and ridesharing is well-established in San Francisco commute corridors.

The Downtown Plan EIR approach for forecasting future land use, employment, and residence patterns is based on a conceptual framework of the process of urban economic development. The analytical procedures incorporate a variety of types and sources of data and information concerning past, current, and likely future conditions regarding economic, real estate, demographic, and public policy factors./15/ The employment forecasts have been used as the basis for the travel demand modelling process. As described above, the C-3 District travel comprised two of the three components of total travel. Because of the use of the employment forecasts in the travel demand modelling process, the transportation projections for the year 2000 are independent of lists of cumulative development.

The travel demand modelling process comprises the following steps:

- Trip generation rates (empirical measures of total travel to and from a specific land use) were applied to C-3 District employment forecasts by business activity (i.e., different rates were used for various land uses).
- The total travel from the C-3 District was distributed to seven Bay Area zones on the basis of forecasts of future employee residence patterns and origin-destination patterns for non-work travel.
- Trips to each of the seven regional zones were assigned to travel modes on the basis of modal splits (distribution of travel over the transportation modes, auto, transit, etc.) developed from the C-3 District surveys.

The total future travel demand was calculated by summing C-3 District work and non-work travel and non-C-3 travel at sub-regional measuring points (called screenlines) located at or just beyond the San Francisco County Line (except for Muni and BART Westbay service which were measured inside San Francisco, outside the downtown).

The non-C-3 travel demand was forecast through the use of growth factors developed on the basis of historic trends in regional and sub-regional travel./16/ Historic growth rates (factors) have been used to project increases only for non-C-3 District travel at the regional screenlines. No other use of historic growth rates has been made in the transportation analysis. Because of the individual and unique nature of each of the transportation screenlines, each growth rate is based on data for that location. Thus, the growth rates for freeways project growth in auto trips, while the growth rates for transit project growth in ridership. Each of the historic growth rates inherently contains information about regional growth in travel patterns and thus incorporates not only growth from other parts of San Francisco, but from elsewhere in the region. As an example, the historic growth factor for trips southbound on US 101 includes travel that crosses the Bay Bridge or the Golden Gate Bridge as well as travel from San Francisco. However, the growth is projected as growth in auto travel and cannot be directly related to growth in employment in San Francisco.

Comparison with List-based Method. The other process used to forecast cumulative transportation impacts starts with a list of cumulative office and retail development (net new office and retail space) proposed, approved or under construction in the greater downtown area (of which, the C-3 District is a portion). From that list, through the use of established trip generation rates, projections of travel demand are made. The estimated travel is assigned to modes on the basis of modal split factors which are assumed not to change over time. The Transportation Guidelines for Environmental Impact Review: Transportation Impacts (Department of City Planning, September 1983, hereinafter Transportation Guidelines) describe the process and the data used to calculate transportation impacts from the development on the Cumulative List.

The current list, shown in Appendix C, Table C-3, pp. A-35 - A-38, has about 19 million gross sq. ft. of net new office space and about 0.9 million gross sq. ft. of net new retail space. On the basis of the Transportation Guidelines analysis, the list-based development

would generate approximately 80,000 p.m. peak-period person trip-ends, of which about 49,000 would occur in the p.m. peak hour. Table 7 shows a comparison of the projections of travel demand from the list-based analysis and from the Downtown Plan EIR for the year 2000. While the list contains development both inside and outside the C-3 District, the Downtown Plan EIR makes specific projections only for C-3 District development, and the travel components shown in Table 7 are for the C-3 District only; therefore, for purposes of comparison, travel from the C-3 component of the list (about 13 million gross sq. ft. of net new office space and 0.4 million gross sq. ft. of retail space) has been analyzed for comparison with the projections from the Downtown Plan EIR for Alternatives 1 to 5 and the Downtown Plan. (The C-3 component of the list is used only in Table 7; all other uses of the list in this document use the entire 19 million gross sq. ft. of office space and 0.9 million gross sq. ft. of retail space.)

As shown in Table 7, travel demand from the Alternatives in the Downtown Plan EIR ranges from Alternative 1 (about 17% higher than the Downtown Plan) to Alternative 4 (about 5% lower than the Plan). Although there is a range, the spread is within the level of accuracy of the transportation analysis, and thus, statistically, the transportation impacts of the Alternatives are equivalent to those of the Downtown Plan.

Several anomalies are apparent in the data shown in Table 7. The major anomaly is that, while the C-3 component of the list would generate about half as much travel as do the Downtown Plan and the five Alternatives, the list-based analysis yields projected travel demands within San Francisco (inside and outside the C-3 District) that exceed those generated by the Downtown Plan and the Alternatives. A brief explanation of this anomaly is presented in the following paragraphs.

The difference in total travel results in part from the different time frames of the list and the Downtown Plan EIR. The Downtown Plan EIR established 1984 as the baseline year and 1990 and 2000 as target study years. Estimates of growth were made on the basis of forecasts and projections for each of the target years for the range of alternatives. In contrast, the projects included on the cumulative list span a period from 1984 to sometime in the early or mid-1990's when completion of all projects on the list or a similar amount of square footage would be expected./17/ This is one of the major reasons why results of impact analyses using these two methods are not directly comparable.

TABLE 7: COMPARISON OF LIST METHOD AND ECONOMIC FORECAST METHOD - OUTBOUND P.M. PEAK-HOUR CUMULATIVE TRAVEL DEMAND FOR THE C-3 DISTRICT (person trip-ends)

Mode of Travel	3/10/84 List/a/	Downtown Plan (1984-2000)/b/	Alternative 1 (1984-2000)/b/	Alternative 2 (1984-2000)/b/	Alternative 3 (1984-2000)/b/	Alternative 4 (1984-2000)/b/	Alternative 5 (1984-2000)/b/
Work Person Trip-ends	22,100	41,400	47,600	46,200	44,400	39,100	39,700
Other Person Trip-ends	8,200	12,100	14,700	14,200	13,400	11,800	11,800
Total Person Trip-ends	30,300	53,500	62,500	60,500	57,900	51,000	51,600
Muni Northeast	900	1,600	1,700	1,600	1,600	1,700	1,700
Northwest	3,700	1,800	2,000	1,900	1,800	1,800	1,800
Southwest	3,100	1,100	1,100	1,000	900	800	800
Southeast	600	1,100	1,000	1,000	1,000	600	700
BART Transbay	4,500	11,800	13,300	13,100	12,700	11,300	11,300
Westbay	1,900	2,400	2,800	2,700	2,600	2,300	2,300
A-C Transit	1,700	200	600	500	300	-100	-100
GGT Bus	1,100	3,200	3,700	3,600	3,500	2,700	3,100
Ferry	300	800	800	800	800	800	800
SamTrans	300	1,200	1,300	1,300	1,200	1,000	1,100
SPRR/CalTrain	500	1,800	2,000	1,900	1,800	1,700	1,700
Regional Auto/c/							
Golden Gate Bridge	370	410	630	590	540	390	370
Bay Bridge	960	1,250	1,550	1,540	1,510	1,060	1,110
Bayshore Freeway (U.S. 101)	420	470	650	620	590	400	400
Interstate 280	420	470	650	620	590	400	400

/a/ Travel from only those projects on the list that are located inside the C-3 District. The list also contains development located in the greater downtown area outside the C-3 District; travel from those projects has been included in the list-based travel shown in the Regional Impacts section.
/b/ Travel from the C-3 District only. The transportation analysis used in the Downtown Plan EIR assumes growth in regional travel that is not shown above; the regional (non-C-3) travel is included in the travel projections in the Regional Impacts section.
/c/ Vehicle trip-ends; calculation made on the basis of 2.7 persons per carpool and 12 persons per vanpool. Person trip-ends on transit cannot be added to vehicle trip-ends to obtain total person trip-ends because of the varying numbers of persons per vehicle.

SOURCE: Environmental Science Associates, Inc.

The March 10, 1984 cumulative list includes 100 First Street with 342,000 gross square feet of net new office space, subtracting existing office space on the site. The project would include 446,100 gross square feet of net new office space. Thus, the number given on the list is lower. The difference would not be statistically significant and would, therefore, not change the results of the overall analysis.

The variations in travel by trip purpose (work, other) and by travel mode (as shown in Table 7, 110) between the list-based method and the Downtown Plan EIR method can be explained by differences in the methodologies and databases used to forecast the travel demand. The list-based analysis employs single-use trip generation data to estimate total travel through the process of adding together the trip generation estimates from all the individual buildings on the list. These single-use trip generation rates do not account for trips going from one building to another within the Downtown. Studies for the Downtown Plan EIR have confirmed that there is considerable travel between land uses in the downtown area. The Downtown Plan EIR analysis uses trip generation rates that compensate for this travel that remains internal to downtown. The list-based analysis adds each trip as if it were a new trip in or out of the downtown, and thus overestimates the total number of peak-hour and peak-period trips in and out of the downtown area.

The differences in distribution of travel among modes (shown in Table 7) are the product of refinements made to the regional distribution and modal splits during the Downtown Plan EIR process. The list-based analysis assumes a static (unchanging over time) regional distribution and static modal splits. The Downtown Plan EIR analysis has incorporated changes in both the regional trip distribution (reflecting forecast availability of housing) and the modal splits (reflecting projected availability of roadway and transit capacity in the future).

Differences in travel among the modes are the result of the refined modal split used in the Downtown Plan EIR method. Because the list-based analysis assumes that modal split remains constant over time, the list-based analysis is insensitive to the abilities of transit agencies and regional roadway systems to serve future demand. The Downtown Plan EIR analysis has assumed that the modal split would change over time in response to the increasing levels of congestion at the regional screenlines. Thus, because the Bay Bridge is at or near capacity in the p.m. peak hour eastbound, the Downtown Plan EIR modal split projects a proportionately lower increase in peak-hour auto demand to the East Bay

than does the list-based analysis. Use of this changing modal split is a refinement that allows the travel model to more accurately forecast travel demand, and thus the Downtown Plan EIR transportation results represent a more accurate level of projection than has been possible using methods and data available to date.

Transit

The transit agencies serving downtown San Francisco carry approximately 60% of the peak-period employee work travel, as well as about 20% of the peak-period other travel. Table 8 shows p.m. peak-hour and peak-period loadings on the local and regional transit routes. The transit analysis calculates capacity on the basis of all runs leaving the C-3 District in the p.m. peak. For all of the transit analyses, only peak direction vehicles are counted. The values shown in Table 8 are sums over the peak hour and the two-hour peak period. Within the peak hour, there would be periods of time when the loading ratios would be higher than those shown for the hour (peak-of-the-peak conditions). Individual transit vehicle loadings vary on a day-to-day basis because of fluctuations in ridership (demand) and because of variations in operating conditions caused by traffic congestion, equipment availability, and/or system breakdowns.

Because the transit system serving San Francisco also provides service to other parts of the Bay Area, there are competing and conflicting demands placed upon the transit network by riders with destinations other than Downtown San Francisco. The locations of the analysis screenlines are such that the amount of San Francisco travel on the transit system is at or near a maximum at each screenline. The location of the screenlines is such that it may appear that travel demand from other development in the areas served by the transit network may not be included in the cumulative analysis. BART is the only transit system analyzed that provides substantial service to destinations other than San Francisco. While it is true that eastbound, southbound, and northbound travel from downtown Oakland development cannot be counted at the eastbound transbay screenline, BART's ridership is most concentrated in the Transbay Tube (its maximum load point). Analysis has shown that the eastbound loadings experienced in the Transbay Tube equal or exceed loadings observed on the same BART lines at the next set of BART screenlines which include all BART activity within the downtown area of Oakland. Thus, on the basis of maximum load point locations and system loading characteristics, use of the transbay

TABLE 8: OUTBOUND REGIONAL TRANSIT DEMAND AND LEVEL OF SERVICE

Transit Agency	1984 Riders	1984 P/S/a/	1984 LOS/b/	2000 Demand	2000 P/S	2000 LOS	2000 Project Percent/c/	1984 + CUMULATIVE LIST Rounded Demand	1984 + CUMULATIVE LIST P/S	1984 + CUMULATIVE LIST LOS	1984 + CUMULATIVE LIST Project Percent/c/
P.M. Peak Hour											
Muni											
Northeast	7,100	1.16	D	8,800	1.05	D	0.2	8,700	1.04	D	0.2
Northwest	8,200	1.26	E	10,100	1.25	D	0.7	12,900	1.59	F	0.5
Southwest	13,500	1.45	E	16,600	1.42	E	0.4	17,500	1.50	E	0.3
Southeast	5,300	1.06	D	7,400	1.01	D	0.1	6,400	0.88	C	0.2
BART											
Transbay	16,100	1.53	F	27,900	1.42	E	0.4	21,900	1.12	D	0.5
Westbay	7,700	1.10	D	10,100	1.06	D	0.4	10,200	1.07	D	0.4
A-C Transit	9,100	0.94	C	10,500	1.08	D	0.4	11,300	1.16	D	0.4
GGT Bus	5,300	1.00	C	8,500	0.91	C	0.4	6,800	0.73	B	0.5
GGT Ferry	800	0.57	B	1,500	0.38	A	0.3	1,100	0.28	A	0.1
Tiburon Ferry	200	0.40	A	300	0.60	B	0.3	200	0.40	A	0.1
SamTrans	1,900	1.12	D	3,100	1.19	D	0.4	2,300	0.88	C	0.6
CalTrain (SPRR)	3,100	0.61	B	4,900	0.79	C	0.4	3,800	0.61	B	0.5
P.M. Peak Period											
Muni											
Northeast	12,600	1.06	D	15,500	0.95	C	0.3	15,200	0.93	C	0.3
Northwest	13,100	1.13	D	15,300	1.05	D	0.7	20,600	1.41	E	0.5
Southwest	23,300	1.31	E	28,700	1.29	E	0.4	29,800	1.34	E	0.4
Southeast	9,100	1.00	C	12,100	0.88	C	0.2	11,000	0.80	C	0.2
BART											
Transbay	25,800	1.54	F	44,100	1.40	E	0.4	35,200	1.12	D	0.5
Westbay	11,300	0.80	C	14,600	0.77	C	0.4	15,400	0.81	C	0.4
A-C Transit	14,000	0.95	C	17,000	1.16	D	0.4	17,500	1.19	D	0.4
GGT Bus	7,600	0.90	C	12,200	0.81	C	0.4	10,000	0.67	B	0.5
GGT Ferry	1,000	0.56	B	1,700	0.33	A	0.4	1,500	0.29	A	0.4
Tiburon Ferry	300	0.60	B	500	1.00	C	0.4	400	0.80	C	0.4
SamTrans	2,900	1.12	D	4,500	1.15	D	0.5	3,600	0.92	C	0.6
CalTrain (SPRR)	4,500	0.68	B	6,200	0.77	C	0.4	5,500	0.68	B	0.4

/a/ Passengers per Seat is the ratio of total demand to seated capacity.
/b/ Level Of Service is scale ranging from A to F that relates P/S ratios to passenger loading conditions on transit vehicles (see Table D-1, Appendix D).
/c/ The percent of demand generated by the project.

SOURCE: Environmental Science Associates, Inc.

screenline for San Francisco travel analysis is appropriate, since the maximum eastbound BART loadings occur at this screenline.

All other transit service analyzed provides radial service to San Francisco on an almost-exclusive (express) basis. Under the operating charters of Golden Gate Transit, A-C Transit and SamTrans, the three transit agencies are not allowed to provide local service within the City and County of San Francisco (e.g., a person boarding in the City must remain on the transit vehicle until crossing the County line before departing). By its very nature, express service to San Francisco provided by transit agencies means that there are limited opportunities for riders to board and depart outside of San Francisco (e.g., most express service has a very limited service area where local service is provided). Consequently, the majority of riders on transit vehicles providing express service to San Francisco are destined for San Francisco. Increased commercial development in areas between the origins of the express routes and San Francisco has little effect on the ridership patterns of the express service since persons wishing to use transit to reach such new areas of commercial development would use local transit service or express service directed to the new development, not express service to San Francisco. Although the service provided by SPRR/CalTrain to and from San Francisco is a mixture of local and express service, the system functions similar to and has ridership characteristics similar to the express bus service to and from the City.

The Level of Service concept, similar to that developed for highway operations, has been applied to both bus and rail transit. Passengers per seat (i.e., total passengers divided by the number of seats) has been used as the measure of effectiveness to define the various level of service ranges. Table D-1, Appendix D, p. A-39, shows the relationship between Level of Service and passengers-per-seat (P/S) ratios for bus transit systems.

Passengers-per-seat ratios are only one measure of adequacy of service. The constraints of operating on heavily-used streets in and around the downtown cause transit-vehicle bunching, loss of running time and missed schedules, all of which reduce service, reliability, and ultimately, capacity. In some respects, this would not be evident from simple quantitative analysis. The data in Table 8, p. 113, is taken from observed operations, not scheduled service, which inherently incorporates the reductions in capacity from operational considerations. In addition to these inefficiencies inherent within the transportation system, there are other factors which would affect

overall transit capacities. These include variability in daily and seasonal ridership for which an absolute capacity must be available, as well as transit riders who remain uncounted because their transit trips both start and end beyond the screenlines used in this analysis. Daily fluctuations in fleet availability also affect system capacity.

During the p.m. peak hour in 1984, all of the transit agencies were found to be operating in Level of Service D or better, with the exception of BART transbay where conditions were found to be at Level of Service F, and Muni in the northwest and southwest corridors, where operations were found to be in Level of Service E.

P.M. peak-period conditions on transit in 1984 were found to be equivalent to or better than peak-hour conditions. In some cases, where demand remains at peak-hour levels during the two-hour period, the passengers-per-seat ratios in the two-hour period are higher than in the one-hour period. This anomaly is the result of express (or additional) service provided by transit agencies during the peak hour, but not during the entire peak period. An example of this type of operation may be seen on BART, where three extra trains operate in transbay service in the peak hour but not in the rest of the peak period. Another factor involved is the distribution of demand (ridership) at uniformly high levels over the peak-period.

Both transit demand and capacity have been assumed to increase during the period 1984 to 2000. The discussions of transit capacity increases for the agencies are based on the Five-Year Plans and Capital Improvement Plans of the various transit agencies; they appear in Appendix J of the Downtown Plan EIR, pp. J.25-J.26. This material, which is discussed below and summarized in Table 8, is incorporated by reference. The future capacities were developed by applying percentage increases, expected in the future, to observed existing capacity. Thus, to the extent that the existing conditions contain inherent capacity reduction for missed runs, the future capacity projections have taken into account the inability of the transit systems to provide 100% of scheduled capacity. As noted above, the Muni analysis calculates capacity on the basis of all runs leaving the C-3 District in the p.m. peak. For all of the transit analyses, only peak-direction vehicles are counted.

Future transit demand and loadings for the Downtown Plan in the year 2000 are shown in Table 8, p. 113, for both the peak hour and the peak period. The total transit

demand from the project would represent about 0.4% of the total travel demand on the transit carriers in the year 2000, under these conditions.

Peak-hour transit demand on Muni in the year 2000 would increase about 25% over 1984 levels in the northeast, northwest and southwest corridors. Muni demand in the southeast corridor would increase about 40% between 1984 and 2000. Peak-hour demand on the other agencies would increase between 30% and 70% during the period 1984 to 2000.

Peak-period increases in demand would be between 15% and 70% from 1984 to 2000. Overall peak-period transit travel would be expected to increase about 30% between 1984 and 2000. Peak-hour and peak-period passenger loadings would be worse than in 1984, although most systems would operate in acceptable conditions (Level of Service D or better). However, BART Transbay and Muni to the Southwest would be in Level of Service E during the peak hour and the peak period.

Although the data in Table 8, p. 113, are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan EIR. As shown in Table 7, p. 110, total transit demand under Alternative 1 would be about 12% higher than under the Downtown Plan while transit demand from Alternative 4 would be about 9% lower than the Plan. As noted previously, these differences would not be statistically significant. In terms of Level of Service, the Downtown Plan would be equivalent to the five Alternatives.

It is important to note that the Five-Year Plan improvements for the transit systems are designed both to provide for future demand increases, and to improve service levels from existing conditions. For new vehicles to expand system capacity rather than represent replacement on a one-to-one basis, operating revenues would similarly need to be increased. During the year 2000 peak hour, Muni service to the southwest would exceed the desirable passengers per seat ratio of 1.25./18/ Although the transit demand in the corridors in excess of the desirable loading would be able to be accommodated under crowded conditions and thus would not be excess demand (that is, not beyond capacity), demand in excess of the desirable loadings would mean that additional transit service over that assumed to occur by 2000 would need to be provided to allow transit operations in the corridor to meet the goal set by Muni. To meet the goal of 1.25 passengers per seat in the

peak hour, Muni would have to increase service by about 14% in the southwest corridor over the amount of service assumed to occur in 2000.

If transit service were not increased beyond the amounts assumed to occur by the year 2000 in the Downtown Plan EIR, transit operations (in terms of passenger comfort) would be slightly better than 1984 conditions. Peak-hour and peak-period passengers-per-seat ratios would be lower than 1984 ratios since service (in some corridors) has been assumed to increase as much as 80% between 1984 and 2000.

If the Downtown Plan's Goals regarding increased transit use were achieved, and the proposals in the Plan regarding transit service improvements were to be fully developed and in place, the impacts on transit agencies would be less than described above. If the Goals were achieved, transit agencies would experience greater levels of demand than under this analysis but overall passenger loadings would be lower (and within desirable levels) because of increased transit service availability that would come about if the proposals stated in the Plan are developed. Section V.E (Mitigation Measures) of the Downtown Plan EIR contains measures that would provide the additional transit service required to mitigate the above impacts.

Also shown in Table 8, p. 113, is an independent analysis of the conditions that would result from adding the travel from the Cumulative List to the 1984 base data, as is specified in the Transportation Guidelines. As noted above, the estimates calculated by adding the travel from the Cumulative List to the 1984 base data are not specifically comparable to those from the Downtown Plan EIR method. The project travel would represent about 0.5% of the total travel on transit in the 1984-plus-the-Cumulative-List condition. Under the 1984-plus-the-Cumulative-List conditions, Muni would not meet its service goals in the northwest and southwest corridors; this would require additional service increases of 27% and 20%, respectively, to meet Muni's goal of 1.25 passengers per seat in the peak hour. The other transit agencies would meet their service goals under these conditions.

Pedestrian

Sidewalks and crosswalks adjacent to the project would operate in the year 2000 in the impeded range during the noon peak with the exception of the Mission Street sidewalk which would be in the unimpeded range (see Table 9, p. 119). The operating conditions

on the Mission Street sidewalk would be improved over projected conditions by the increase in effective width that would result from construction of the project. The project pedestrian traffic would represent about 44% and 34% of the pedestrian volumes on the Mission Street and First Street sidewalks, respectively, and about 23% and 35% of the pedestrian volumes on the crosswalks across Mission Street and First Street, respectively, during the noon hour.

P.m. peak-hour operations in the year 2000 would be in the impeded range with the exception of the Mission Street sidewalk and crosswalk. The Mission Street sidewalk would operate in unimpeded conditions, while crosswalk operations would remain at the upper end of impeded conditions. Project pedestrian traffic during the p.m. peak hour would represent about 41% and 16% of the pedestrian volumes on the Mission Street and First street sidewalks, respectively. About nine percent of the p.m. peak-hour crosswalk pedestrian volumes would be from the project.

Although the data in Table 9 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan EIR. Although not shown in Table 7, p. 110, pedestrian travel demand is closely related to total travel demand because the majority of trips on the primary modes shown in Table 7 begin or end as pedestrian trips at a building. Thus, on the basis of total travel demand, Alternative 1 would be about 17% higher than the Downtown Plan while Alternative 4 would be about 5% lower than the Plan. The range among the Alternatives would not change the flow regimen shown in Table 9.

Also shown in Table 9 are the results of adding travel from the Cumulative List to the 1984 base data. While the results appear to be similar to those based on the Downtown Plan EIR, the list-based results are not comparable for the reasons stated above, particularly because the list-based travel would occur sooner than the year 2000. Under the 1984-plus-the-Cumulative-List conditions, the sidewalks and crosswalks adjacent to the project would operate in impeded conditions during both the noon and p.m. peak 15-minute periods; project travel would represent between 9% and 34% of the total travel, respectively.

Freeway On-Ramp Intersection Traffic

Future traffic operations at intersections near freeway on-ramps serving the project vicinity are shown in Table 10, p. 120. For the year 2000 projections, 1984

TABLE 9: PEAK PEDESTRIAN VOLUMES AND FLOW REGIMEN (project side of street)

	Total Width (feet)	Effective Width (feet)/a/	Existing p/f/m/b/	Existing Flow Regimen/c/	Existing Plus Project p/f/m	Existing Plus Project Flow Regimen	2000/e/ p/f/m	2000/e/ Flow Regimen	2000/e/ Project Percent	1984 plus Cumulative List/e/ p/f/m	1984 plus Cumulative List/e/ Flow Regimen	1984 plus Cumulative List/e/ Project Percent
NOON PEAK /d/												
Mission Street sidewalk	15.0	9.5	1.5	Unimpeded	2.4	Impeded	2.0	Unimpeded	44%	2.7	Impeded	34%
First Street sidewalk	15.0	9.8	2.0	Unimpeded	2.9	Impeded	2.6	Impeded	34%	3.2	Impeded	28%
Crosswalk across Mission Street	14.8	14.8	3.0	Impeded	3.9	Impeded	3.9	Impeded	23%	4.3	Impeded	21%
Crosswalk across First Street	14.6	14.6	2.0	Unimpeded	2.9	Impeded	2.6	Impeded	35%	3.2	Impeded	28%
P.M. PEAK/d/												
Mission Street sidewalk	15.0	9.5	1.4	Unimpeded	2.1	Impeded	1.8	Unimpeded	41%	2.3	Impeded	32%
First Street sidewalk	15.0	9.8	2.3	Impeded	2.8	Impeded	3.1	Impeded	16%	3.1	Impeded	15%
Crosswalk across Mission Street	14.8	14.8	3.0	Impeded	3.3	Impeded	3.9	Impeded	9%	3.8	Impeded	10%
Crosswalk across First Street	14.6	14.6	4.6	Impeded	5.2	Impeded	6.0	Impeded	9%	5.8	Impeded	9%

/a/ The effective width is the narrowest portion of the sidewalk and is calculated by subtracting the space taken by poles, planter boxes, people standing at windows, etc., from the total width.
/b/ Pedestians per foot of effective sidewalk width per minute.
/c/ See Table D-2 and Figure D-2, Appendix D, for descriptions of pedestrian flow regimens.
/d/ Peak 15-minute periods.
/e/ Calculated using existing sidewalk widths.

SOURCE: Environmental Science Associates, Inc.

traffic volumes were increased by a 19% average growth factor based on the Downtown Plan EIR traffic analysis. The growth factor represents a worst-case, unrestrained auto demand condition for street traffic in the downtown and, as such, is probably higher than actual traffic growth may be in the future in the downtown. Motorists confronted with increased delays on surface streets would be expected to alter their travel patterns to use less congested routes (to the freeway ramps) or to travel at different times (to avoid periods of traffic congestion). The intersections of Mission and Beale Streets and First and Harrison Streets are at Level of Service E and F, respectively, during the p.m. peak hour. Level of Service descriptions are shown in Table D-3, Appendix D, p. A-47. Peak-hour conditions would be expected to deteriorate at both of the intersections by the year 2000. Expanded areas of traffic congestion would disrupt surface Muni operations.

Muni operations would be adversely affected by increased congestion. Operation of Muni surface transit routes through the congested areas would be impeded; this would lead to decreased levels of Muni service since scheduled headways would not be met.

As shown in Table 10, the list-based analysis yields similar Level of Service intersection conditions. While similar to the results of the Downtown Plan EIR results, the list-based results are not comparable for the reasons stated earlier.

TABLE 10: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a/

	1984		1984 Plus Project		Downtown Plan (2000)		1984 Plus Cumulative List	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Beale & Mission Sts.	0.92	E	0.92	E	1.05	F	1.11	F
First & Harrison Sts.	1.11	F	1.13	F	1.34	F	1.35	F

/a/ Level of Service descriptions and relationship to V/C ratios are shown in Table D-3, p. A-47 of Appendix D.

SOURCE: Environmental Science Associates, Inc.

Regional Freeway Traffic

Analysis of traffic conditions at the regional screenlines has been conducted for both the p.m. peak hour and the two-hour p.m. peak period. A.m. peak traffic conditions at the regional screenlines have the effect of metering the amount of traffic that reaches the downtown from outside of the City. This analysis has considered p.m. peak conditions. P.m. conditions are usually most severe on both freeways and streets within San Francisco, whereas a.m. peak conditions are most severe at locations outside of the City. This analysis has therfore considered p.m. peak conditions as most critical to the quality of flow on downtown streets.

The regional freeway system that serves San Francisco is an extensive network of roadways that also provides service to most of the major urban centers in the Bay Area. Consequently, there are many areas of commute-related congestion, some of which may experience worse conditions than at the screenlines analyzed in the Downtown Plan EIR and in this document. As noted in the Downtown Plan EIR, the screenlines were selected on the basis of their relationship to travel leaving San Francisco and thus, by their definitions, the screenlines are points of maximum effect of travel from San Francisco; at points further removed from the screenlines, San Francisco travel would be a lesser percentage of the total and thus the overall effects of San Francisco travel would be less than at the screenlines.

Traffic demand at the regional screenlines in 1984 (see Table 11) during the p.m. peak hour were found to use between 90% and 100% of the available capacity on the freeways and bridges. Although the capacity of the Bay Bridge is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour demand shown in Table 11 represents the effective capacity. The demand figures shown in Table 11 for 1984 for the one-hour and two-hour periods are averages of several days; thus, values for individual days may be different than the average.

Peak-hour freeway operating conditions in 1984 were found to be generally in Level of Service D to E conditions which would indicate unstable flows in the 35 mph to 45 mph range. Table D-4, Appendix D, p. A-48, shows the Level of Service for freeway operations. Peak-of-the-peak conditions within the peak hour would be expected to be worse than the hourly conditions because of surges in traffic demand during the peak

TABLE 11: OUTBOUND REGIONAL AUTO DEMAND

Regional Auto Corridor	Capacity/a/	1984 Volume/b/	2000 Demand	2000 Project Percent	1984 + CUMULATIVE LIST Demand	1984 + CUMULATIVE LIST Project Percent
P.M. Peak Hour						
Bay Bridge (I-80)	9,000	8,540	9,790	0.2	9,480	0.2
Golden Gate Bridge (US-101)	7,200	6,740	7,150	0.2	7,100	0.2
US-101 (south of Harney Way)	8,000	7,390	8,400	0.2	7,800	0.2
I-280 (between Alemany Blvd. and San Jose Avenue)	8,000	7,610	8,650	0.1	8,020	0.1
P.M. Peak Period						
Bay Bridge (I-80)	18,000	17,880	19,330	0.1	18,460	0.1
Golden Gate Bridge (US-101)	14,400	13,870	14,850	0.1	15,380	0.1
US-101 (south of Harney Way)	16,000	14,200	16,530	0.2	14,870	0.2
I-280 (between Alemany Blvd. and San Jose Avenue)	16,000	13,620	15,890	0.1	17,290	0.1

/a/ Although the capacity of the Bay Bridge is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour volume shown above represents the effective capacity.
/b/ The volumes for 1984 for the one-hour and two-hour periods are averages of several days and, thus, values for individual days may be different than the average.

SOURCE: Environmental Science Associates, Inc.

hour. Conditions during the peak-period at the screenlines would be similar to those experienced during the peak-hour.

As shown in Table 11, p. 122, demand during the peak hour in the East Bay and Peninsula corridors would be expected to increase about 15% between 1984 and 2000. Peak-hour demand in the North Bay corridor would increase by about six percent between 1984 and 2000. The project travel demand, about 150 p.m. peak-hour and 230 p.m. peak-period vehicle trip-ends, would represent about 0.2% of the total demand in each corridor in the year 2000. Both the East Bay and Peninsula corridors would have excess peak-hour demand that would not be met during the peak period./19/ The North Bay corridor would have excess demand in the peak period. Excess auto demand would result in either a spreading of the demand into the hours adjacent to the peak period or in increased transit and ridesharing use should additional transit service (beyond that assumed to occur by the year 2000) or ridesharing incentives be provided.

Operating conditions at the regional screenlines would be at or near capacity in Level of Service E. Traffic flow conditions would be expected to be very unstable and could experience temporary flow interruptions throughout the peak-period. Peak-of-the-peak conditions would be prevalent during the peak hour and may extend into the peak period. The overall two-hour commute period would not be expected to increase substantially in the future. Rather, the occurrence of peak-of-the-peak conditions, now less than one hour, would most likely expand to fill the one-hour peak.

As shown in Table 11 the list-based cumulative analysis, while not comparable to the year 2000 data, produces similar estimates of future demand. The project would represent about 0.2% of the regional auto demand in this condition. The Bay Bridge and I-280 would have excess demand during the peak hour; the Bay Bridge, the Golden Gate Bridge, and I-280 would have excess demand during the peak period. The same conclusions noted above regarding future operating conditions would apply to this condition as well.

Although the traffic data shown in Table 11 and used to calculate the v/c ratios in Table 10, p. 120, are calculated on the basis of projections for the Downtown Plan, similar traffic data would be expected under the five Alternatives in the Downtown Plan EIR. As shown in Table 7, p. 110, regional traffic demand under Alternative 1 would be about 34% higher than under the Downtown Plan while regional traffic demand from Alternative 4

would be about 13% lower than under the Plan. In terms of Level of Service, the Alternatives would be equivalent to the Downtown Plan.

OFF-STREET PARKING AND LOADING REQUIREMENTS AND DEMAND

Parking

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District. The short-term parking demand, while representing about 25% of the equivalent daily demand, is about 65% of the daily vehicle travel. Although the equivalent daily demand would leave about ten percent of the parking supply vacant, surges in short-term demand (more travel in one period than in another period) can cause temporary localized overloads of parking facilities within various portions of the downtown, even though parking may be available elsewhere in the downtown.

Although the project would retain an existing 85-space off-street parking facility, the project would not affect the operations of the existing on-site garage in any way, nor would it change the number of parking spaces on site. The project would create net new long-term parking demand for about 330 spaces and net new demand for about ten short-term spaces for a total demand of about 340 equivalent daily spaces.

The project would conform with Downtown Plan policies by retaining an existing parking facility used for short-term parking.

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent less than one percent of the total demand from the C-3 District. As noted in the Downtown Plan EIR, the parking supply in the year 2000 has been assumed to increase to about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in that year if vehicular demand occurs as projected. However, as shown in Table 11, p. 122, the analysis for the year 2000 forecasts excess auto demand in the peak hour and the peak period. If the excess demand is accommodated on transit or ridesharing; then the overall parking demand would decrease from the above estimate by about 2,300 spaces.

Alternatively, if the Goals of the Downtown Plan are met, total parking demand in the year 2000 would be about 48,100 equivalent daily spaces, an increase of six percent over 1984. If the Goals were achieved, there would not be a parking deficit.

The list-based analysis shows future demand for 11,400 spaces from projects in the C-3 District, which would be a total demand of 56,700 spaces. While similar to the 58,000 space (unmitigated) demand from the Downtown Plan, the list-based demand is not comparable for the reasons stated earlier.

Although the parking demands discussed above are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan EIR. Although not shown in Table 7, p. 110, parking demand from the C-3 District under Alternative 1 would be about four percent higher than under the Downtown Plan, while Alternative 4 would be about one percent lower than the Plan.

Loading

Table 12 shows total service vehicle travel and average hourly service-vehicle demand for the project, based upon data published in Center City Circulation Program: Pedestrian Circulation and Goods Movement./20/ The new building would generate about 98 service vehicle stops per day. Average hourly loading space needs are given in terms of spaces per hour per 10,000 gross square feet of building space; average demand for the project would be about 4.7 spaces per hour and peak hourly demand would be 5.9 spaces.

Under the amendments to the City Planning Code to implement the Downtown Plan (November 1984), the project would be required to provide five loading docks, or four loading docks and two service vehicle loading spaces to serve the 452,600 gross square feet of office space as calculated under the Downtown Plan./21/ None of the other uses (retail, restaurant) in the project would be of sufficient size to require additional loading facilities.

Four loading spaces and two service vehicle loading spaces would be located on the Minna Street side of the project with curb cuts of about 45 feet and 35 feet separated by about ten feet of sidewalk. One loading dock would have a depth of 45 feet, two a depth of 35 feet and the fourth a depth of 25 feet; the two service vehicle spaces would also have a depth of 25 feet. These depths and the other dimensions and numbers of docks would

TABLE 12: PROJECTED SERVICE-VEHICLE TRAVEL ATTRIBUTABLE TO THE PROJECT/a/

Use	Space (GSF)/b/	Daily Stops/ 10,000 sq.ft. of GSF/b/	Daily Stops	Spaces/Hour/ 10,000 sq.ft. of GSF/b/	Average Spaces/ Hour
Office	452,600	2.1	95	0.1	4.5
Retail/ Restaurant	8,700	3.0	3	0.2	0.2
TOTALS			98		4.7

/a/ Service-vehicle travel has been included in total travel calculated for the project.
/b/ Gross square feet of floor space.

SOURCES: Environmental Science Associates, Inc.; Department of City Planning, 1980, Center City Circulation Program.

conform to requirements as specified in Section 154(b) of the proposed amendments to the Code to implement the Downtown Plan. Section 155(d) of the amendments allows up to four freight loading and service vehicle spaces to be individual accessible directly from a service street or alley such as Minna Street. By having six such spaces, the project would not conform with the revised code. Additionally, the curb cuts for the loading area would be in violation of Department of Public Works standards (as described in order No. 62850) that permit maximum curb cuts of 30 feet and minimum separation distances of 20 feet between adjacent curb cuts.

The potential for pedestrian-vehicle conflicts would be increased by the service-vehicle traffic from the project crossing the Minna Street sidewalk. Pedestrian volumes on Minna Street are low, so the impact of project service-vehicle traffic would not be as great as it would be in a more heavily traveled pedestrian area, such as Mission or First Street.

Analysis of the design of the proposed Minna Street loading/service area indicates that standard single-unit trucks would be able to enter the loading area by backing in from a westbound position on Minna Street, as required by Department of Public Works standards.

The service elevator in the loading area would connect with the office floors, and would be located in a separate utility core. Building directories and signs for the service elevators would be placed in the loading area. Access to the lobby and retail areas would be provided directly from the loading area via a short corridor.

The project would include on-site storage for trash containers. Containers would not be placed on streets or sidewalks except during actual trash pickup. The project could provide containers to collect and store recyclable solid waste (such as glass, metal, computer cards, and newspaper) and the project sponsor could contract for recycling service; the project sponsor is considering this measure.

NOTES - Transportation, Circulation and Parking

/1/ Construction data are from Donald Jones, Manhattan Construction Co., telephone conversation, December 6, 1983.

/2/ Scott Shoaf, Department of Public Works, Bureau of Engineering, Division of Traffic, telephone communication, January 3, 1985.

/3/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. of office space and 150 pte per 1,000 gross sq. ft. of retail space were used to generate travel from the project. The two trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." The calculations for this project have not been discounted to account for linked trips and thus present a "worst-case" scenario. The September 1983 Transportation Guidelines are on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

/4/ Deduction of existing travel demand is per the Transportation Guidelines.

/5/ The percentage of travel occurring in the peak period and the peak hour are from the Transportation Guidelines. Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area in the peak commute direction) travel. The outbound travel consists of all of the work-related travel and half of the other (non-work) travel.

/6/ San Francisco Department of City Planning, Office of Environmental Review, Environmental Impact Report for The Downtown Plan, EE81.3, certified October 18, 1984. This document is an analysis of projected growth in the C-3 District to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the EIR includes projections of future modal splits for work and other (non-work) travel for the p.m. peak period, peak hour, and daily time periods. This document is on file with and available for public review at the Department of City Planning, 450 McAllister Street, Fifth Floor.

/7/ San Francisco Department of City Planning, January 1983, Transportation, an Element of the Master Plan.

/8/ This deficit-per-ride figure is based upon information provided in: Touche Ross & Co., Transit Impact Development Fee Cost Study, Fiscal Year 1981-82, July 1983, Corrected September 9, 1983, and consultation with Bruce Bernhard, Chief Accountant, San Francisco Municipal Railway, telephone communication, October 11, 1984. The calculation of the peak period marginal deficit (additional cost per ride minus additional revenue per ride) was done by ESA. The deficit due to the project would be: 590 peak-period trips per day x 252 working days per year x $0.50 deficit = $74,340. The cost deficit estimate is based on the assumption that essentially all vehicles are operating at capacity during peak periods and additional riders would require new vehicle trips. During off-peak periods, it was assumed that all vehicles operate with excess capacity, resulting in an average off-peak marginal cost of zero. These cost estimates are appropriate for project costs to Muni of a single office building. Assessments of costs that would result from cumulative development require the inclusion of additional cost factors and may be best projected using average cost data. Muni does not have data that would enable it to estimate the average cost per passenger trip. It is reasonable to conclude that average costs would be significantly higher than marginal costs.

/9/ Ward Belding, Supervisor, Office of Research, BART, telephone conversations, July 12, 1984 and October 5, 1984. The $1.06 average deficit per trip is based on all operating costs and revenues for the entire system and is not specific to San Francisco trips. Available data from BART do not enable peak and non-peak-period costs to be differentiated.

/10/ 1,150 BART trips per day x 252 days/year x $1.06 = $307,188.

/11/ Pushkarev and Zupan, 1975, Urban Space for Pedestrians, Cambridge, Mass., pp. 85-117.

/12/ Pedestrian counts were made by Environmental Science Associates, Inc. on Monday and Thursday, November 14 and 17, 1983.

/13/ The Downtown Plan EIR contains about 50 pages of text devoted to the description of transportation impacts in the greater downtown area, as well as an additional 30 pages of text describing transportation mitigation measures. The information in this EIR is not intended to be a comprehensive summary of the transportation analysis in the Downtown Plan EIR, but rather summarizes portions relevant to the project and its contribution to cumulative impacts. For details and assumptions used to arrive at the data and results presented in the Downtown Plan EIR, see Section IV.E, Transportation Setting and Impact, Section V.E, Transportation Mitigation, Appendix J, Transportation and Circulation Analyses and Methodologies, and Volume III, Summary of Comments and Responses, of the Downtown Plan EIR, which are incorporated by reference into this report and summarized in the text as appropriate.

/14/ In 1977, peak average vehicle occupancy westbound on the Bay Bridge was 1.7 persons per vehicle. By 1983, in response to increasing congestion and increased travel and parking costs, peak average vehicle occupancy westbound increased to 2.1 persons per vehicle. Data are from Traffic Survey Series A-48 and MA-60, Spring 1977 and Spring 1983, Metropolitan Transportation Commission.

/15/ The Downtown Plan EIR contains extensive discussion of the methods and results used to forecast future C-3 District land use and employment. Sections IV.B, Land

Use and Real Estate Development; IV.C, Business and Employment; IV.D, Residence Patterns and Housing; and Appendices G, Land Use and Real Estate Analysis; H, Business and Employment Analysis; and I, Theoretical Discussion of Housing Market Effects/Methodology for Forecasting Residence Patterns, of the Downtown Plan EIR, which contain detailed information about methods used to forecast future employment in the C-3 District, are incorporated by reference into this report and summarized in the text as appropriate. The employment forecasts in the Downtown Plan EIR for the year 2000 exceed the employment projected using the current list-based cumulative analysis, as the list cannot take into account projects not yet proposed.

/16/ The analysis of historic trends in travel patterns is from the following sources: Metropolitan Transportation Commission, Travel Observations of the Bay Bridge Corridor, October 21, 1981; Homburger and Dock, Trends in Traffic Patterns at the Bay Bridge and Caldecott Tunnel, U.S. Department of Transportation, DOT-BIP-WP-32-3-77, July 1977; telephone survey of 500 drivers conducted in April 1980 by Golden Gate Transit, data supplied by Alan Zahradnik, Transportation Planner, on February 16, 1983; Office of the Auditor-Controller, Comparative Record of Traffic for the Month of November, May 27, 1937 through November 30, 1982, Golden Gate Bridge, Highway and Transportation District; San Francisco Municipal Railway Planning Division, Projections of Future Muni Demand and Vehicle Requirements, October 1982; San Mateo County Transit District, SamTrans Five-Year Transportation Development Plan: 1983-1988, April 1983; California Department of Transportation, CalTrain Caltrans/Southern Pacific Peninsula Train Service Five-Year Plan 1983-1988, July 1983; and traffic volume counts from San Francisco Department of Public Works, Bureau of Engineering, Division of Traffic Engineering and from 1983 San Francisco Cordon Count, JHK and Associates, July 1983.

/17/ See Downtown Plan EIR, pp. II.9-II.11, for a comparison of the cumulative list projections with those of the Downtown Plan EIR.

/18/ San Francisco Municipal Railway, Short-Range Transit Plan 1984-1989, June 1984.

/19/ Table IV.E.4, p. IV.E.36, of the Downtown Plan EIR contains discussion of the implications of excess demand at the regional screenlines.

/20/ San Francisco Department of City Planning, 1980, Center City Circulation and Goods Movement, Working Papers 1, 2 and 3, and Final Report.

/21/ The City Planning Code (September, 1979), without the amendments to implement the Downtown Plan, specifies in Section 152, Article 1.5 that the amount of floor area proposed for the project would require provision of two off-street loading spaces. The project would conform to this requirement.

F. AIR QUALITY

Upon completion, emissions of air pollutants would be generated by project-related traffic. Projected daily emissions in 1990 from project-generated traffic, and from cumulative development traffic (based on the March 10, 1984 list of Cumulative Office Development in Downtown San Francisco), are shown in Table 13. Table 13 compares

the cumulative list-based emissions projections to emissions projected for C-3 District development by the Downtown Plan EIR (EE 81.3, certified October 18, 1984), and to total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan. The project would contribute about one percent to the emissions generated by cumulative list projects, and about two percent to the emissions generated by Downtown Plan development, in 1990. Alternative 1 to the Downtown Plan (covered in the Downtown Plan EIR) would generate about 38% more emissions in 2000 (from development between 1990 and 2000) than would the Downtown Plan. Alternative 4 would generate about seven percent less emissions than would the Downtown Plan. Emissions generated by Alternatives 2, 3, and 5 would fall within this range. The types of air quality impacts under these alternatives would be the same as those under the Downtown Plan; their magnitudes would vary in proportion to the differences in their emissions.

TABLE 13: PROJECTED DAILY POLLUTANT EMISSIONS

	Emissions (tons per day) /a/					
		Cumulative	Downtown Plan/d/		Bay Area/e/	
Pollutant	Project 1990/b/	List 1990/c/	1990	2000	1990	2000
Hydrocarbons	0.013	1.4	0.6	0.6	428	428
Nitrogen Oxides	0.016	1.8	0.8	0.8	558	610
Carbon Monoxide	0.158	17.0	6.8	6.6	1,952	1,883
Particulates	0.023	2.7	1.1	1.3	562	649
Sulfur Oxides	0.002	0.2	0.1	0.1	194	233

/a/ Project, Cumulative List, and Downtown Plan emissions calculated using BAAQMD, EMFAC6C vehicular emission factors. Emissions of HC, NOx, and CO include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust entrained from roadway surfaces.
/b/ Based on a weighted daily average of 11.7 miles travelled per trip.
/c/ Incremental emissions of downtown-area development based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 (see Appendix C, Table C-3, pp. A-35 - A-38).
/d/ Incremental emissions of C-3 District development, per the Downtown Plan EIR, Table IV.I.2, p. IV.I.12.
/e/ Cumulative total emissions of Bay Area development, per ABAG, BAAQMD, MTC, 1982 Bay Area Air Quality Plan, pp. 42, 53, and 112.

SOURCE: Environmental Science Associates, Inc.

Motor vehicle trips associated with the project and with cumulative development would emit more nitrogen oxides (NOx) than hydrocarbons (HC), both of which are chemical precursors of ozone. On the basis of the LIRAQ (Livermore Regional Air Quality model) regional ozone simulations performed for the 1982 Bay Area Air Quality Plan, incremental NOx emissions in excess of incremental HC emissions could lead to a decrease in peak ozone concentrations in the Bay Area. This relationship between NOx and HC emissions would hold for the project and under both the cumulative list scenario and the Downtown Plan scenario shown in the table. Thus emissions of HC and NOx generated by the project and by cumulative development would not increase Bay Area ozone concentrations. If the HC emission reduction strategies adopted in the 1982 Bay Area Air Quality Plan are successful, these concentrations are expected to attain the federal standard by 1987.

NOx emissions would decrease in downtown San Francisco by about 22% from 1984 to 2000, but would increase in the Bay Area by about five percent from 1984 to 2000. It is possible that excess NOx emissions generated by cumulative development (including the project) could increase ozone and/or nitrogenous oxidant concentrations further downwind, outside the Bay Area. In addition, incremental NOx emissions generated by cumulative development (including the project) throughout the Bay Area could increase acid rain further downwind, outside the Bay Area, to a relatively small extent.

In 1990 and 2000 (according to the Downtown Plan EIR), area-wide traffic volumes in the downtown area would increase by about 8% and 15%, respectively, over 1984 volumes; average traffic speeds would decrease by about one mph and two mph, respectively, from 1984 speeds. However, in 1990 and 2000 the average vehicle is expected to emit 32% and 43%, respectively, less carbon monoxide (CO) than in 1984 due to ongoing state and federal emissions controls. The projected effects of these controls on new vehicles (and the retirement of older, more polluting vehicles) would more than offset the increases in traffic volumes and traffic congestion due to project and cumulative development.

CO concentrations at 11 intersections in the downtown study area, as analyzed in the Downtown Plan EIR, would decrease from 1984 to 1990 and thereafter to 2000. CO concentrations at ten of the 11 intersections would be within the state and federal standards in 1990 and 2000 under the Downtown Plan and the Alternatives. CO

concentrations at one intersection (Brannan and Sixth Sts.) would continue to violate the state and federal eight-hour standards both in 1990 and 2000 under the Downtown Plan and the Alternatives.

CO concentrations at selected intersections affected by project-generated traffic, and by cumulative development traffic (based both on the March 10, 1984 cumulative list and on the Downtown Plan EIR growth projections), were projected for worst-case conditions and are compared with the ambient standards in Table 14. These projections were calculated using a revised version of the Modified Linear Rollback (MLR) method which was developed for the Downtown Plan EIR.

Currently, the eight-hour CO standard is estimated to be violated at the Beale/Mission intersection. CO concentrations are predicted to be less in 1990 and 2000 than in 1984, and would not violate the standards at either intersection analyzed in any of the future scenarios.

Emissions of total suspended particulate (TSP) generated by the project and cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility.

Emissions of sulfur oxides (SOx) generated by the project and cumulative development would not bring San Francisco's sulfur dioxide (SO_2) concentrations measurably closer to violating the standard.

The project, and other downtown development on the cumulative list or under the Downtown Plan, would not conflict with the pollution reduction strategies recommended by the 1982 Bay Area Air Quality Plan. These strategies consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. As discussed above, emissions associated with the project and with cumulative downtown development are not projected by this EIR or the Downtown Plan EIR to increase ozone concentrations, and thus would not conflict with the objectives of the 1982 Bay Area Air Quality Plan regarding ozone. Cumulative downtown development is projected by the Downtown Plan EIR potentially to result in a violation of the eight-hour CO standard at one of the intersections analyzed therein. The model used to make the CO projections might not be accurate to within the percentages of the violations.

TABLE 14: EXISTING AND PROJECTED CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

Intersection	Averaging Time	Concentrations (ppm) /a/ 1984	Project 1990	Cumulative List 1990/b/	Downtown Plan/c/ 1990	Downtown Plan/c/ 2000
First & Harrison	1-hour	10.9	8.4	8.6	8.5	8.1
	8-hour	8.4	6.3	6.5	6.5	6.1
Beale & Mission	1-hour	13.4	10.0	10.3	10.1	9.3
	8-hour	9.8	7.2	7.9	7.5	7.0

/a/ Calculations for all scenarios were made using a revised version of the Modified Linear Rollback (MLR) method described in the Downtown Plan EIR. Background concentrations were calculated to be 7.4 ppm for one hour and 5.7 ppm for eight hours in 1984, 6.0 ppm for one hour and 4.5 ppm for eight hours in 1990, and 5.7 ppm for one hour and 4.1 ppm for eight hours in 2000. Underlined values are in violation of the state or federal CO standards. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour state and federal standards are 9 ppm.
/b/ Based on the list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 (see Appendix C, Table C-3, pp. A-35 - A-38).
/c/ Based on the growth projection methodology contained in the Downtown Plan EIR, Table IV.I.3, p. C&R-I.8.

SOURCE: Environmental Science Associates, Inc.

Therefore, until additional "hotspot" monitoring is performed to validate the model projections, a determination of whether cumulative downtown development would conflict with the the objectives of the 1982 Bay Area Air Quality Plan regarding CO cannot be made.

The pollutant emissions and CO concentrations shown in Tables 13 and 14 were projected for 1990 on the basis of two different sets of future growth assumptions, with differing results. In one case, a list of specific projects proposed, approved, and under construction was used (see Appendix C, Table C-3, pp. A-35 - A-38). In the other case the employment growth trend approach of the Downtown Plan EIR was used, and those projections presented. In both cases, the method for the air quality analyses was identical. However, the results using projected cumulative development are not directly comparable with those from the Downtown Plan EIR for several reasons.

First, it is reasonable to assume that the projected cumulative development on the list would be completed and occupied sometime between 1990 and 2000, rather that in either of those two analysis years which were used in the Downtown Plan EIR. The pollutant emissions and CO concentrations were calculated for 1990 using the cumulative list, even though those projects are not expected to be completed until the mid-1990s, in order to provide a comparison with the Downtown Plan EIR results. However, this has the effect of artificially increasing the cumulative list results, because average-vehicle emission rates will decline with time, as a result of state and federal controls.

Second, the transportation analysis used for the Downtown Plan EIR differs from that used for the cumulative list, as described in the Transportation section of this report (Chapter IV., Impacts, E., pp. 106-112). Briefly, these differences include the fact that a cumulative list-based analysis assumes that the same proportion of new employees would commute by private auto as is currently the case. In contrast, the Downtown Plan EIR analysis projects a shift of commuters from driving alone to carpool and transit, because commute routes such as the Bay Bridge are already at or near capacity and could not accommodate all of the vehicles that would be used if the proportion of persons driving alone to work remained constant.

Other reasons for the differences include the use in the cumulative list analysis of a constant regional distribution of trips, whereas the Downtown Plan EIR forecasts a declining percentage of new employees residing in San Francisco, and the lack in the cumulative list approach of discounting factors to account for trips between individual projects within the Downtown. Also, the cumulative list applies to the entire downtown area, a larger geographical area than that analyzed in the Downtown Plan EIR, which applies to the C-3 District only.

Thus, total (regional) vehicle miles travelled and the resulting pollutant emissions projected using the cumulative list approach are considered artificially high. On a local intersection basis, traffic volumes and the resulting CO concentrations might or might not be higher with the cumulative list approach, depending on the particular location. This is because the cumulative list method does not distribute traffic on all the same streets in the same proportions as does the Downtown Plan EIR method.

G. ENERGY

CONSTRUCTION ENERGY

Demolition of existing structures, excavation, and removal and transport of excavated materials would require an unknown amount of energy. Fabrication and transportation of building materials, worker transportation, site development, and building construction would require about 800 billion Btu of gasoline, diesel fuel, natural gas, and electricity./1,2/

OPERATIONAL ENERGY

New buildings in San Francisco are required to conform to energy conservation standards specified by Title 24 of the California Administrative Code. The state allows building developers to comply with the standards through the component performance standards method which requires the incorporation of a set of specific design features, through the use of nondepletable energy resources, or by demonstrating that the building would consume no more than a specified quantity of energy, expressed as Btu's per square foot per year (energy budget)./3/ Documentation showing compliance with these standards is submitted with the application for the building permit and is enforced by the Bureau of Building Inspection.

Proposed Energy Budget

The project office tower would require about 95,000 Btu per gross square foot annually, or about 100,000 Btu per square foot of conditioned floor space, which is about 320 Btu per gross square foot per day or 337 Btu per square foot of conditioned floor space./4/ The building's energy consumption would meet the performance standards of Title 24 of the California Administrative Code, which allow an annual energy budget of 126,000 Btu per square foot for office use and 200,000 Btu per square foot for retail use, for a composite performance budget of about 127,000 Btu per square foot./5/ Estimated project energy consumption is shown in Table 15.

The existing parking garage would be modified. A roof would be added to the top level and the garage would be ventilated. Energy consumption of the garage is currently 45,500 kW hours per year; it is estimated that upon project completion the garage would consume

TABLE 15: ESTIMATED PROJECT ENERGY USE

Allowable Under Title 24 Energy Budget	
Total annual BTUs/a/ per square foot of office space	126,000 Btu
Total annual BTUs per square foot of retail space	200,000 Btu
Monthly Electric Consumption/b/	
Estimated monthly electrical consumption per square foot	0.8 kWh (8,300 Btu)
Estimated total monthly electrical consumption	414,000 kWh (4.2 billion Btu)
Annual Consumption	
Estimated total annual electrical consumption	5 million kWh (50.9 billion Btu)
Connected Kilowatt Load	4,900 kilowatts
Estimated total annual energy consumption (excluding transportation-related energy consumption)	51 billion Btu (8,793 barrels of oil)

/a/ Btu (British thermal unit): A standard unit for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1° Fahrenheit (251.97 calories) at sea level.
/b/ Electrical consumption was calculated for the project by Skidmore Owings & Merrill. These calculations are available for review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

NOTE: Energy Conversion Factors:
one gallon gasoline = 140,000 Btu
one kilowatt (kw) = 10,239 Btu assuming operational efficiency of 33% for fossil or nuclear fueled power plant
one barrel of oil = 5,800,000 Btu

SOURCE: Skidmore, Owings and Merrill; Environmental Science Associates Inc.; and Department of City Planning

about 300,000 kWh per year and that the sun terrace on the garage roof would consume about 20,000 kWh per year for lighting.

Electricity for project operation would be provided by PG&E through its existing distribution system./6/ Electricity would be used for lighting, air conditioning, space heating, ventilation, elevator operation, office equipment operation, water heating, and plumbing system pumping. No natural gas would be used. Proposed energy conservation measures include a variable-air-volume air conditioning system, a water economizer cycle, and fluorescent lights. The project would not incorporate solar or other renewable energy sources.

The project (office tower and parking garage) would have a connected electrical load of about 4,900 kilowatts and would consume about 5.0 million kilowatt hours (kWh), or 50.9 billion Btu, of electricity per year./7/ Monthly electrical use would range from about 300,000 kWh in February to about 430,000 kWh in August and October.

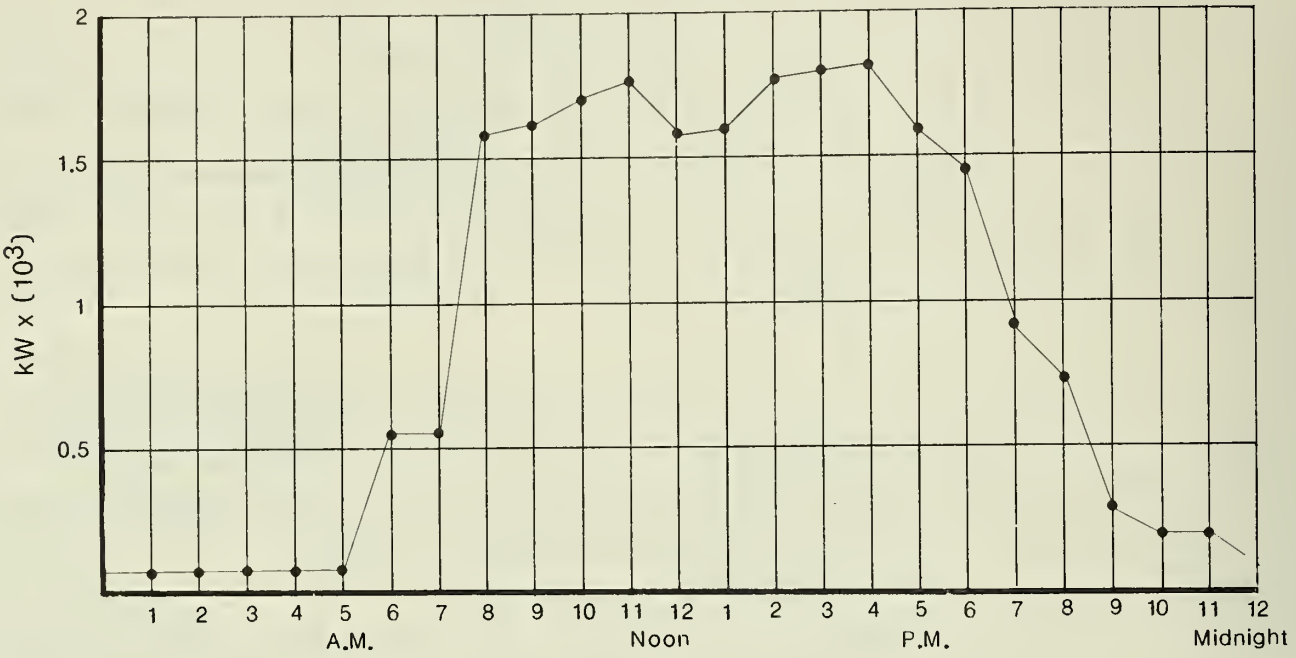
Peak electrical demand would be about 1,910 kW and would typically occur at about 3:00 p.m. on October afternoons. This peak demand would not coincide with PG&E's systemwide electrical consumption peak. Project demand for electricity during PG&E's peak electrical load periods, July and August afternoons, would be less than 1,910, an estimated 0.01% of PG&E's peak load of 16,000 MW./8/ Projected annual and peak daily electrical consumption distribution curves are shown in Figure 30. The graphs do not include energy consumption of the garage or sun terrace, because these areas are not considered in establishing compliance with state energy standards.

Transportation Energy

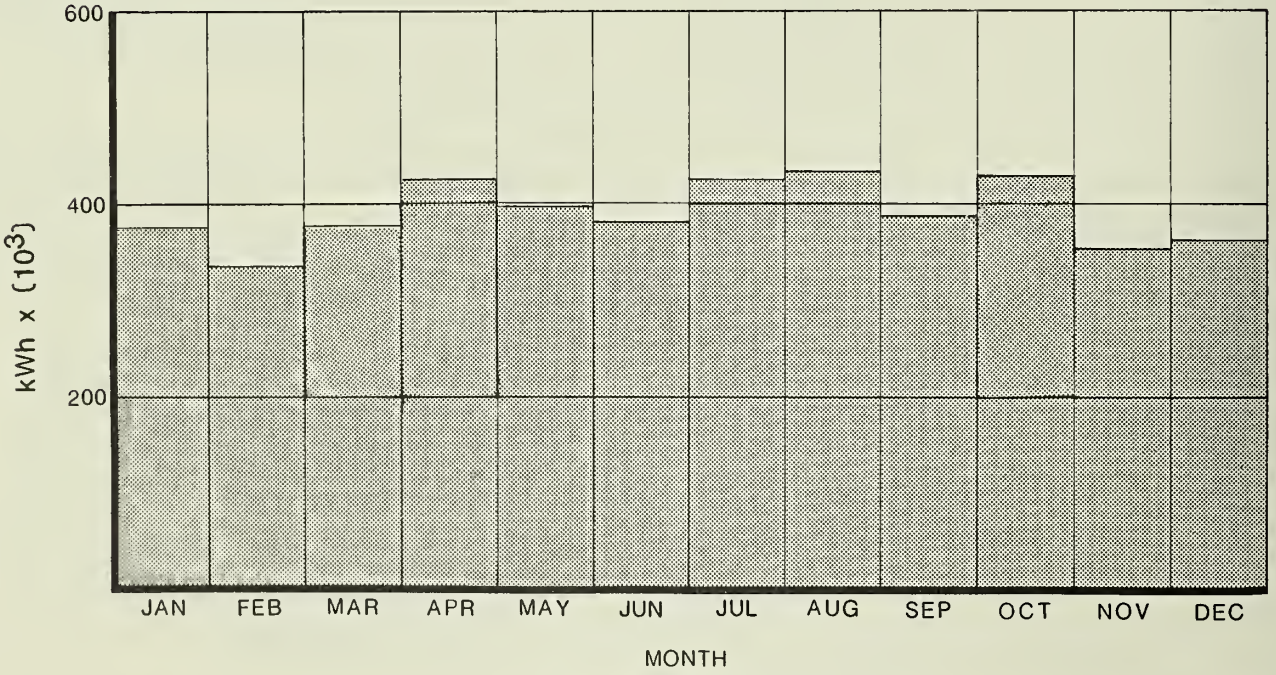
Project-related transportation would cause additional, off-site energy consumption. On the basis of project trip generation described in the Transportation section (Chapter IV., Impacts, E., p. 97), project-related trips (net new trips) would require about 152,000 gallons of gasoline and diesel fuel and about 1.36 million kWh of electricity annually. The total annual transportation demand, converted to a common unit using at-source factors, would be about 33.8 billion Btu. This projected use is based upon the mix of vehicles expected in California in 1987. Generally, average vehicle fuel use is expected to decrease until 1987 as the vehicle fleet becomes more efficient.

Energy Policies

In the Energy Policy Component of the Environmental Protection Element of the Comprehensive Plan, Policy 4 under Objective 2 states that development should



PEAK DAY (OCTOBER) ELECTRICAL LOAD DISTRIBUTION



ANNUAL ELECTRICITY CONSUMPTION

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON
and ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

FIGURE 30:
PROJECTED ELECTRICAL DISTRIBUTION CURVES
100 FIRST STREET

"encourage use of energy conserving appliances and lighting systems." To respond to Policy 4 of this objective, the project sponsor would install appliances complying with state Efficiency Regulations (Title 20, Chapter 2, California Administrative Code). The project also would address Policy 1 under Objective 4, to "increase the use of transportation alternatives to the automobile." The project would be convenient to public transit and the sponsor has agreed to designate a transportation broker for the project to encourage transit use by project workers. The project would not address Policy 3 of Objective 5, as it would not connect to a district heating system nor would it include cogeneration.

Cumulative Energy Analysis

Based on the March 10, 1984 list of cumulative office development in downtown San Francisco, yearly estimated electrical consumption for the projected 19 million sq. ft. of additional space in downtown would be approximately 340 million kWh of power per year (see Appendix C, Table C-3, p. A-35 for a list of these projects)./9/ PG&E, in examining its ten-year load growth projections for San Francisco, believes that growth rates of net new office space in the downtown will diminish from the historic figure of 1.5 million sq. ft. per year to between 1 million and 1.2 million sq. ft. per year./10/ Total increased energy demand over the next decade would be approximately 200 million kWh of electricity per year, less than projected using the cumulative list./11/ The lower PG&E prediction is largely due to its lower estimate of future development.

Projections of electrical use for growth that would occur under the Downtown Plan EIR indicate an increase of about 210 million kWh of electricity per year between 1984 and 1990 as a result of all new development occurring in the C-3 District. From the period 1984 to 2000, electrical consumption rates would increase by about 330 to 350 million kWh per year, or about 120 to 140 million kWh per year more than between 1984 and 1990./12/ Electric requirements for development that would occur with the alternatives analyzed in the Downtown Plan EIR would increase between 300 through 500 million kWh per year between 1984 and 2000./13/

Natural gas consumption for new office development would be less than current demand, which includes consumption by older, less energy-efficient buildings./9/ On the basis of growth estimates contained in the Downtown Plan EIR, the City Planning Department estimates that, between 1984 and 2000, gas consumption will grow by 470 million cu. ft.

(about five million therms) per year of which 210 cu. ft. (about two million therms) per year would be for office uses./12/ Natural gas requirements for development that would occur with the alternatives analyzed in the Downtown Plan EIR would increase between 580 and 810 million cu. ft. (about six to nine million therms) per year between 1984 and 2000./13/

For two reasons, referenced estimates in the Downtown Plan EIR are not directly comparable to those made by applying energy consumption factors to the floor area of projected cumulative development (list method). First, the list-based projections estimate energy demand at the time of full buildout (mid-1990s) rather than during the 1984-1990 and 1990-2000 time periods as in the Downtown Plan EIR. Second, about 75% of the projects on the March 10, 1984 list of projected cumulative office development in downtown San Francisco fall within the C-3 District boundary, which means the list method estimates energy consumption for a larger area than the Downtown Plan EIR. The PG&E projection cannot be compared to the projections in the Downtown Plan EIR because they cover different time periods.

A comparison of the Downtown Plan and PG&E estimates of electricity use between 1990 and 2000 in downtown San Francisco is being prepared by PG&E, to be released in a report later this year. PG&E plans to meet increased San Francisco energy demands to the year 2000 are discussed on pp. IV.G.13-14 of the Downtown Plan EIR, which are hereby incorporated by reference. In summary that material indicates the demand increases in electricity would be met from nuclear sources, oil and gas facilities, hydroelectric and geothermal facilities, and other sources such as cogeneration, wind and imports. PG&E plans to continue receiving most of its natural gas from Canada and Texas under long-term contracts.

NOTES - Energy

/1/ The British thermal unit (Btu) is the quantity of heat required to raise the temperature of one pound of water one degree Farenheit at sea level. The term "at-source" means that adjustments have been made in the calculation of the thermal energy equivalent (Btu) for losses in energy that occur during generation, transmission, and distribution of the various energy forms as specified in: ERCDC, 1977, Energy Conservation Design Manual for New Non-Residential Buildings, Energy Conservation and Development Commission, Sacramento, California, and Apostolos, J. A., W. R. Shoemaker, and E. C. Shirley, 1978, Energy and Transportation Systems, California Department of Transportation, Sacramento, California, Project #20-7, Task 8.

/2/ Hannon, B. et al., 1978, "Energy and Labor in the Construction Sector," Science 202: pp. 837-847.

/3/ State of California Energy Resources Conservation and Development Commission, Conservation Division, Energy Conservation Design Manual for New Nonresidential Buildings, 1984.

/4/ The project's energy consumption characteristics were projected by Skidmore, Owings & Merrill - Houston, using a computer energy-modeling program, DOE-2.1, certified by the California Energy Commission.

/5/ State energy efficiency standards are described in Energy Resources Conservation and Development Commission, February 1980, Conservation Division Regulations Establishing Energy Conservation Standards for New Residential and New Non-Residential Buildings, California Administrative Code, Title 24, Part 6.

/6/ PG&E indicates that its electricity and natural gas distribution systems in the site vicinity are adequate to serve the project. Alfred Williams, Temporary Marketing Supervisor, PG&E, telephone conversation, August 9, 1983.

/7/ The discussion of operational energy consumption is based on information provided by Skidmore Owings & Merrill, Architects/Engineers - Houston; this information is on file at the San Francisco Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor, and can be reviewed during normal business hours.

/8/ San Francisco Department of City Planning, Downtown Plan EIR (EE81.3), certified October 18, 1984.

/9/ Energy consumption factors of 18 kWh sq. ft./year and 11 cu. ft./year (about 12,100 BTU) are based on unpublished data of actual building consumption rates supplied by David Rubin, Department of City Planning, personal communication, April 1984, and include base power consumption of the building core (uses covered by Title 24) and power demands of electric office machines (uses not covered by Title 24).

/10/ Ken Austin, Commercial-Industrial Marketing Supervisor, Pacific Gas and Electric Company, letter of March 23, 1984. This letter is available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St., 5th floor, San Francisco.

/11/ PG&E's analysis of a typical office building yielded on annual consumption of about 17 kWh per sq. ft. per year which agrees with the City's estimate within the limits of estimation methodology.

/12/ City and County of San Francisco, 1984, Downtown Plan EIR, Volume I, pp. VII.G.1-VII.G.17. The Downtown Plan EIR uses a consumption rate factor of 18 kWh/sq. ft./year from 1984-1990 and 16 kWh/sq. ft./year from 1990-2000. These different factors are due to Title 24 revisions to reduce building energy budgets. These new standards would be reflected by lower electrical consumption in buildings constructed by 1990.

/13/ City and County of San Francisco, 1984, Downtown Plan EIR, Volume I, pp. IV.G.1-IV.G.17, and pp. VII.G.1-VII.G.4.

H. CONSTRUCTION NOISE

The noise environment of the project site is dominated by vehicular traffic, including trucks, automobiles, emergency vehicles and buses; the Transbay Terminal is across First Street from the site. The Environmental Protection Element of the Comprehensive Plan indicates a day-night average noise level (Ldn) of 75 dBA on Mission Street and 70 dBA on First Street in 1974./1,2/ Noise measurements taken along Mission and First Streets during a weekday p.m. peak-hour/3/ indicate an average noise level, Leq, of 77 dBA /4/ and a maximum noise intensity, Lmax, of 92 dBA. /5/

Project construction would occur in several stages: demolition and clearance, excavation, foundation preparation, frame erection, and exterior finishing. These activities would take a total of about 21 months. Throughout the construction period there would be truck traffic to and from the site, initially hauling away debris and dirt and then delivering building materials. Construction activities would temporarily increase noise levels in the project vicinity.

Conventional unmuffled and unshielded piledrivers emit noise levels of 100 to 105 dBA at a distance of 50 ft. each time the pile is struck. The San Francisco Noise Ordinance (Sections 2907(b) and (c)) limits noise emissions from powered construction equipment other than impact tools and equipment to 80 dBA at a distance of 100 ft. Impact tools and equipment must have intake and exhaust mufflers recommended by the manufacturers and approved by the Director of Public Works as achieving maximum noise attenuation. To date, no muffled and/or shielded piledriver has been approved for use in San Francisco. Thus, use of any impact-type piledriver would be in violation of the ordinance. However, the Department of Public Works allows piledriver operation under certain conditions, which may include specification of a relatively quiet pile driver, predrilling of pile holes, and specification of hours of operation in order to reduce the number of people exposed. Pile driving would occur intermittently over a ten week period; actual pounding would occur during a five to 15 minute span per pile.

Construction equipment other than impact tools must comply with the San Francisco Noise Ordinance (Section 2907(b)), which requires that sound levels not exceed 80 dBA at 100 feet from the source. Section 2908 prohibits construction work from 8:00 p.m. to 7:00 a.m., if noise from such work exceeds ambient noise levels by five dBA at the property line, unless a special permit is authorized by the San Francisco Department of Public Works.

TABLE 16: TYPICAL COMMERCIAL/INDUSTRIAL CONSTRUCTION NOISE LEVELS AT 50 FEET FROM THE SOURCE

Construction Phase	Duration of Phase/a/ (weeks)	Average Noise Level (dBA)
Ground clearing	9	84
Excavation	6	89
Foundations/b/	9	78
Erection	28	85
Exterior Finishing	23	89

/a/ Phases of construction would overlap.
/b/ Time includes ten weeks of pile driving, noise level is for construction activities other than pile driving (noise levels during pile driving could reach 105 dBA at 50 ft.).

SOURCE: Bolt, Beranek and Newman, December 31, 1971, Noise from Construction Equipment and Home Appliances, vs. Environmental Protection Agency

Typical construction noise levels anticipated for this project are shown in Table 16. Construction noise levels would be highest (other than for pile driving) during the six weeks of building excavation and 23 weeks of exterior finishing. Ten weeks of pile driving would occur during foundation work and noise levels, when the pile is struck, could reach 105 dBA at 50 feet.

ITT maintains a telecommunications installation in the Terminal Plaza building (440-454 Mission Street) across the intersection of First and Mission Streets from the site. During excavation and exterior finishing, noise levels in the Terminal Plaza building could reach as high as 81 dBA with windows open, 66 dBA with windows closed; and, during pile driving, noise levels could reach as high as 97 dBA with windows open and 82 dBA with windows closed. Noise and vibration, during pile driving, would not be expected to affect ITT's electronic equipment and operations since no adverse impacts were experienced during construction of Fremont Center immediately adjacent to ITT./6/ In the buildings across Mission Street, noise levels would reach as high as 102 dBA with windows open and 87 dBA with windows closed during pile driving. Construction noise would be audible in Golden Gate University, where classes are held until 9:30 p.m. Noise levels in the University as a result of pile driving could reach as high as 97 dBA with windows open and

82 dBA with windows closed. Any evening pile driving would be more noticeable to occupants of the University with the reduced background traffic noise; the sponsor must obtain a special permit for pile driving after 8:00 p.m.

Vibrations from the impact during pile driving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than high noise levels. General stress reaction has been observed in humans exposed to brief sounds of 76 dBA./7/ Noise at levels greater than 60 dBA can interfere with normal speech and concentration, noise levels greater than 70 dBA would require workers to close windows or shout to communicate. Intermittent noises, such as pile driving noise, reduce perception of control over the environment. This perceived loss of control frequently results in a depressed mood and depressed motivation. It has also been shown that high noise levels can lead to elevated blood pressure./8/ Repeated impulse and intermittent sounds of high level appear more likely to disrupt performance, than continuous or steady sounds of comparable level./9/ Thus, workers in nearby buildings would experience noise levels during pile driving of up to 87 dBA with windows closed; this would result in workers having to shout to communicate and would make telephone conversations difficult. During other phases of construction, noise levels would cause workers in nearby buildings to close windows. With windows closed, noise levels could reach as high as 70 dBA, interfering with speech and concentration. Generally, noise levels over 60 dBA could be considered a nuisance.

NOTES - Construction Noise

/1/ Ldn, the day-night average noise level measurement, is based on human reaction to cumulative noise exposure over a 24-hour period, which takes into account the greater annoyance of nighttime noises. Noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

/2/ A decibel (db) is a logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called "sound level"), measured in decibels. A dBA is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels.

/3/ Existing noise levels at the project site are based on noise measurements taken by Environmental Science Associates on Thursday, October 6, 1983 between 5:00 p.m. and 6:00 p.m.

/4/ Leq is the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period.

/5/ Lmax is the maximum noise intensity reached during the period of time of the measurement.

/6/ Edward Prather, Director, West Coast Operations, ITT, telephone conversation, July 16, 1984.

/7/ The Central Institute for the Deaf, Effects of Noise on People, U.S. EPA, 1971.

/8/ Sheldon Cohen, et. al., "Cardiovascular and Behavioral Effects of Community Noise," American Scientist, Volume 69, October 1981.

/9/ National Institute for Occupational Safety and Health, Occupational Exposure to Noise, U.S. Department of Health, Education and Welfare, 1972.

I. EMPLOYMENT AND HOUSING FACTORS

EMPLOYMENT

Tenant Displacement

The project would displace 23 existing businesses that employ about 190 workers. All tenant leases expired by May 1984 or may be terminated with six months notice. Replies to a survey inquiring about relocation plans were received from 18 of the 23 lessees. Nine tenants indicated that, upon termination of their leases, they would go out of business, six would prefer to relocate in San Francisco, possibly in the new 100 First Street building, and three would relocate outside of San Francisco. No tenants currently have definite relocation plans./1/ The existing parking garage located at 521 Mission Street would continue operations with the same level of employees. This garage currently employs eight people.

Direct Project-Related Employment

The project would accommodate approximately 1,725 permanent full-time jobs, an increase of about 1,525 based on 200 jobs now on site. Although no tenants are secured at this time, prospective tenants are anticipated to consist mainly of corporate and professional businesses. Since specific tenants are not known, the projected total number of employees was derived on the assumption of an average number of square feet per employee, by employment type (see Table 17).

Indirect (Secondary) Employment

Secondary employment and income would result from permanent project employment; through the multiplier effect, each employee would generate additional employment

TABLE 17: PROJECTED PERMANENT EMPLOYMENT AT THE PROJECT SITE /a/

Employment Type	Building Space (Gross Sq. Ft.)	Space Per Employee (Sq. Ft.)	Projected Number of Employees /a/
Office	452,600	275 /b/	1,645
Commercial/Retail	8,700	350 /b/	25
Maintenance, Building Management, and Parking	549,900		55 /c,d/
TOTAL EMPLOYMENT			1,725

/a/ Projections are rounded to the nearest five employees.
/b/ Downtown EIR Consultant's Report, Environmental Science Associates, Inc., May 1983, p. IV.C.5.
/c/ Michael D. Barker, General Partner, Barker Interests Limited, letter, August 17, 1984.
/d/ Cathy Girod, Payroll, Metropolitan Parking Corporation, telephone conversation, October 10, 1984.

SOURCE: Environmental Science Associates, Inc.

through expenditures for goods and services. On the assumption that the new jobs on site would be primarily in the finance, insurance, and real estate (FIRE) sector, about 6,160 additional jobs in other sectors of the Bay Area economy would result from the project./2/ Thus, the total number of Bay Area jobs that would be supported by growth in downtown employment due to the project would be about 7,685 (1,525 project jobs plus 6,160 jobs from the multiplier effect)./2/

Project construction would require about 410 person-years of labor, an average of about 235 construction jobs over a 21-month construction period. About 720 additional person years of employment would be generated in the Bay Area as a result of the multiplier effect of project construction./2/

Cumulative Employment

Employment in the C-3 District has been forecast for the year 2000 in the Downtown Plan EIR./3/ The employment forecast incorporates changes in types of businesses locating in

the C-3 District, intensity of use of space, and local, national, and international economic trends. A total of 372,000 jobs in the C-3 District is forecast for the year 2000, an increase of 91,200 jobs over the 1984 level. The proposed project would provide approximately 1,575 net new jobs in the year 2000 (based on projected employee densities), or approximately 0.4% of total year 2000 jobs in the C-3 District.

HOUSING

Project-Related Effects

As indicated in the previous subsection, the project would result in a net increase in on-site employment of about 1,525 full-time jobs. To the extent that the project would attract out-of-area employees and contribute to the formation of additional households by existing area residents, it would also contribute to increased local housing demand.

Not all of the project's net new employees would seek housing in the City. Some of the employees may be already working in San Francisco and could live within or outside of the City. On the assumption that project's housing demand would be that projected by the January 1982 Office Housing Production Program (OHPP), the project could create a net demand for about 399 housing units in San Francisco./4/ (The housing formula contained in the Office Housing Production Program Interim Guidelines is based on 250 gross square feet per office employee, 40% of downtown office workers living in San Francisco and each household occupied by 1.8 workers). The OHPP formula is the basis for City Planning Commission policy of requiring housing to offset demand created by office development, which is required for development proposals of 50,000 gross square feet or greater. This formula only includes estimates of office workers living in San Francisco; it does not include factors for estimating workers living in other parts of the region (see Cumulative and Indirect Effects discussion below).

Housing Policy

Under the January 1982 OHPP Interim Guidelines, the City Planning Commission could require the project sponsor to provide 399 units in San Francisco to meet the estimated housing demand of the project.

The project sponsor proposes to mitigate the project-generated demand for 399 units in San Francisco through either direct sponsorship of a housing development or financial aid to a housing development, as provided for in the City's Office Housing Production Program.

The OHPP guidelines are being revised. As currently drafted (July 19, 1984), the implementing ordinance for the revised guidelines would contain provisions for estimating net housing demand in both the C-3 and non-C-3 districts, provisions for in-lieu payments (instead of housing construction), and an exemption for existing businesses.

On the basis of the currently proposed methodology for estimating housing demand in the C-3 district, the project would be required to provide about 172 units./5/ This calculation is based on 446,100 gross square feet of additional office space multiplied by 0.000386./5/ The 446,100 gross square feet of additional office space consists of 452,600 gross square feet of new space minus 6,500 square feet of existing space.

Housing Affordability

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15150(a), discussion of housing affordability for new office workers is incorporated by reference from the Second Street Square Final EIR, 82.591E, certified January 12, 1984 (pp. 53-55). Briefly, while a survey of occupants of a building comparable to the project would yield some housing affordability data, accurate identification of housing affordability characteristics of persons entering the San Francisco housing market as a result of a new office project is virtually impossible. The problems with making such a determination include: 1) the identity and financial resources of persons employed in the newly constructed space cannot be known prior to occupation of the project; 2) persons working in the newly constructed space (in old or newly created jobs) may not be newly employed in San Francisco; and 3) persons newly employed in San Francisco in newly created jobs may not have obtained their jobs as a result of new office development. Even if the number of new employees and their preferences for housing were known, a household's ability to pay for housing depends on a variety of factors in addition to individual income, such as family composition and housing preferences./6/

CUMULATIVE AND INDIRECT EFFECTS

Future Residence Patterns for San Francisco

Employment growth and building development in downtown San Francisco will result in more employees working and living in the City. Over time, more existing residents will take San Francisco jobs and others who take San Francisco jobs will move into the City.

Downtown Plan Forecast as Cumulative Context

Forecasts of residence patterns in the year 2000 were prepared for the Downtown Plan EIR./7/ These forecasts incorporate future housing, labor force, and employment patterns in San Francisco and throughout the region and consider changing demographic, housing market, and transportation factors.

According to the Downtown Plan forecasts, approximately 189,000 C-3 District workers would be living in San Francisco in 2000. This represents an increase of 30,000 residents employed in the C-3 District over the 159,000 estimated for 1984, a 19 percent increase./8/ Relatively more employed San Franciscans would be employed in the C-3 District. The percentage (employed San Franciscans holding C-3 District jobs) would increase from 45.0 percent in 1984 to 47.5 percent in 2000. Relatively fewer C-3 District jobs would be held by San Franciscans. The percentage (C-3 District jobs held by San Franciscans) would decline from 55.5 percent in 1984 to 50.2 percent in 2000. These changes would be the result of cumulative development and employment growth in the C-3 District between 1984 and 2000.

It is important to understand the difference between the two percentages above. In each case, the same estimate for the number of jobs held by San Francisco residents is compared to an estimate for a larger group: to all employed residents of the City in the first instance and to all C-3 District employment in the second. The percentages are different since the number of employed residents is different from the number of jobs. These percentages both describe the same employment situation, but from different perspectives.

The Downtown Plan forecasts fall within the range of estimates of C-3 District workers living in San Francisco that was identified by the analysis of Alternatives in the Downtown Plan EIR. By 2000, the Alternative forecasts range from 189,000 to

193,000 C-3 District workers living in San Francisco. The relative comparisons described above apply to all the Alternatives; the percentage of total employed San Franciscans working in C-3 District jobs in 2000 would be higher than in 1984, while the percentage of C-3 District jobs held by residents would be lower.

The residence patterns of future occupants of the proposed project can be estimated using information developed in the Downtown Plan analysis. This approach assumes that employment densities for the building and residence patterns for those working in the building would reflect the average conditions for all similar buildings and occupants in the C-3 District in 2000. According to this approach, there would be about 760 people employed in the project who would live in San Francisco. The project would account for about 0.4 percent of all San Franciscans employed in the C-3 District in 2000 under the Downtown Plan forecast./9/

Estimates Based on the List of Office Projects in Downtown San Francisco

An alternative means of evaluating the cumulative effects of projects such as this project is to use the list of all projects that are under construction, approved, or under formal review. (This list is discussed in Appendix C, p. A-31 of this report. The list includes projects throughout the greater downtown, which includes the C-3 District as well as adjacent areas.) It is possible to calculate from the list the change in the number of downtown workers living in San Francisco associated with this amount of development. Adding this number to the 1984 base estimate of downtown workers residing in San Francisco produces an estimate of total downtown workers living in the City, once all projects on the list were built and occupied. The results from this approach indicate that about 230,000 workers in the greater downtown area would live in San Francisco at that time./10/

This approach uses data from the Transportation Guidelines for Environmental Impact Review: Transportation Impacts, Department of City Planning, September 1983, to estimate the residence patterns of future employees in the buildings on the list. Unlike the Downtown Plan forecast approach, this approach incorporates no changes over time in either employment densities or residence patterns. It assumes that current average conditions (reflected in the Transportation Guidelines would continue throughout the build-out period for the list.

The project would account for about 0.3 for the of all downtown workers living in San Francisco when all projects on the list were built and occupied. The project would represent a smaller share of future activity in the greater downtown area than of activity in the C-3 District alone.

Differences in Cumulative Approaches

There are several important differences between the two approaches to cumulative analysis: The Downtown Plan approach of forecasting space and employment and the approach of using a list of proposed projects. (A detailed comparison of the two approaches is presented in Section V.A, Introduction to Cumulative Impact Analysis of the Montgomery/Washington Building Supplemental Environmental Impact Report, 81.104E, certified December 6, 1984, and is incorporated by reference pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15150(a)). The first approach incorporates forecasts of new development for all land uses (office, retail, hotel, and housing) and accounts for the demolition and conversion of existing space. The second approach accounts for the net addition of office and retail development. Moreover, the Downtown Plan forecast methodology incorporates changes in economic activity and employment that would occur in the use of existing space, while the list includes the changes accommodated by net new construction and some conversions./11/ The Downtown Plan forecast also includes employment growth, such as building maintenance and construction employment, that is not directly related to the occupancy of space. The Downtown Plan forecast incorporates changes over time in residence patterns, reflecting changes in the regional distribution of population, housing, and employment. The list approach applies relationships derived from current conditions to the future situation, assuming no changes over time. The Downtown Plan approach is currently limited to the C-3 District while the list covers a larger geographic area. In addition, there is no definite time frame associated with the list, while the Downtown Plan forecast represents a best estimate of the development likely to be built and occupied from 1984 to 2000. It is because of these differences that the cumulative estimates of future residence patterns under each approach are not comparable. Within each approach, however, the project can be compared to the cumulative totals as described above.

Housing Market Implications for San Francisco/12/

With continued employment growth, there would be more people with preferences for San Francisco housing and with greater financial resources to pay for housing. This additional demand for housing would be added to an otherwise large group of consumers with preferences for City housing. The supply of housing is expected to be expanded in San Francisco. However, the private market is currently unable to directly produce an adequate supply of affordable housing. This situation arises from a number of national, regional, and local factors and is expected to continue.

There would be greater competition for available housing units with employment growth than without it. As a result of increased competition, housing prices and rents would be higher with continued employment growth than without it. How much higher depends on the future of other factors (such as interest rates and the availability of financing) and cannot be easily quantified. Generally, continued employment growth at the levels reflected by the Downtown Plan EIR forecast and the cumulative list could contribute to a future situation where housing prices and rents are moderately higher, on average, than current levels. At a minimum, employment growth is likely to be among the factors which keep prices and rents at their current levels, in constant dollars.

A more competitive City housing market with higher prices/rents would affect the type and quality of housing that can be purchased or rented for various prices and rents, the share of financial resources devoted to housing, and the extent to which housing needs and preferences are met. Over the long term, it could also affect the mix of types of residents in the City.

Different households would be affected in different ways. There would be people who decide not to move into the City and existing residents who would eventually move out of the City for more acceptable housing elsewhere. There would be many individuals who continue to live in San Francisco and pay higher prices/rents for City housing. Still others, who are unable or unwilling to pay more, would accept housing which did not meet their preferences or needs. And finally, there would be owners of existing units who would benefit to the extent that their housing appreciated.

Generally, those households with fewer financial resources available to pay for housing would make the most sacrifices in adapting to more competitive market conditions. They would have less ability to compete for housing and fewer options available to them. San Francisco currently has and will continue to attract a large number of persons that would be faced with these difficulties in securing housing.

The proposed project, as part of the future pattern of downtown office development, would contribute to these housing market impacts. The project's individual contribution cannot be separately identified.

Regional Perspective on Residence Patterns and Housing

The residence patterns of San Francisco workers can also be considered from a regional perspective. In fact, future labor force, housing, and employment throughout the region were important factors in the Downtown Plan residence patterns forecasts. Expected trends in labor force participation, workers per household, housing production, and employment growth provided the future regional context in which the Downtown Plan forecasts were prepared.

Table 18 presents residence patterns forecasts for C-3 District workers as prepared for the Downtown Plan EIR and an alternative residence patterns forecast for downtown workers using the March 10, 1984 list of downtown projects./13/ Both residence patterns forecasts are also shown as percentages of the total employed population in each part of the region, as forecast by the Association of Bay Area Governments (ABAG)./14/

The Downtown Plan 1984 estimates and forecasts for 2000 (first three columns on the left) indicate that the largest number of C-3 District workers would live in San Francisco, followed by the East Bay, the Peninsula, and the North Bay. The largest increase of C-3 District workers would be for those living in the East Bay, followed by San Francisco, the Peninsula and the North Bay. The next three columns compare the Downtown Plan residence patterns forecasts for C-3 District workers to ABAG's forecasts of total employed residents throughout the region. C-3 District workers would represent a relatively large share of all employed San Franciscans and relatively smaller proportions of the labor force in other Bay Area counties. Comparing 1984 and 2000, there would not be major changes in the C-3 District percentages of the labor force in each area. The same conclusions would apply in the case of any of the five Alternatives to the Downtown Plan.

TABLE 18: REGIONAL PERSPECTIVE ON RESIDENCE PATTERNS

	Downtown Plan Forecast of Residence Patterns of C-3 District Workers/a/						List-Based Forecast of Residence Patterns Of Workers in Greater Downtown Area/b/					
	Number of Workers			Percent of Total Employed Population In Each Part of Region/c/			Number of Workers			Percent of Total Employed Population In Each Part of Region/c/		
	Total 1984	Total 2000	Change 1984-2000	Total 1984	Total 2000	Change 1984-2000	Total 1984 /d/	Total Future /d/	Change From 1984 /e/	Total 1984	Total Future	Change from 1984 /f/
San Francisco	159,000	189,000	30,000	45%	47%	56%	198,000	230,000	32,000	57%	57%	59%
East Bay	73,000	110,000	37,000	7	8	9	94,000	114,000	20,000	9	8	5
Peninsula	35,000	48,000	13,000	4	4	4	46,000	54,000	8,000	5	4	2
North Bay	19,000	29,000	10,000	7	7	7	27,000	33,000	6,000	10	9	4
TOTAL	286,000 /g/	376,000 /g/	90,000	11%	11%	10%	365,000	431,000	66,000	14%	12%	7%

/a/ Includes permanent employment and annual average construction employment. Incorporates changes in employment for office, retail, hotel and other uses.
/b/ There is no time frame associated with development of the projects on the list. This amount of space would probably be absorbed between 1990 and 2000. If all the projects on the list were built before the year 2000, there would be more development (not currently on the list) and thus more workers in the downtown area by that year. In this case, the percent of the regional employed population in 2000 would be higher than shown here.
/c/ Forecasts of employed residents in Bay Area counties from ABAG, Projections '83. ABAG presents forecasts of employed residents for 1985 and 2000. For comparability with the cumulative analyses (which use 1984 as the base year), ABAG's 1980 to 1985 projections were prorated over the five-year period to estimate 1984 conditions for the region.
/d/ The 1984 estimate of total employment in the greater downtown area includes C-3 District estimates from the Downtown Plan EIR and order-of-magnitude estimates for the other downtown areas in that year. For the future employment estimate, estimates of employment growth from the development of buildings on the list are added to the 1984 base year totals. See note /e/.
/e/ This estimate is based on all projects on the list except those included in the Downtown Plan EIR 1984 base year estimate. The estimates of employment and residence patterns for projects on the list are based on data in the Transportation Guidelines, September 1983.
/f/ The ABAG forecasts of employed population in each area of the region in 2000 are used for this calculation. As mentioned in note /b/, the projects on the list are likely to be built and occupied between 1990 and 2000. Therefore, by the year 2000, more development (and thus more workers) could be expected and the percentages of the total regional employed population would be higher.
/g/ The Downtown Plan forecasts include some workers who would live outside the Bay Area. This is a small number and is not shown here.

SOURCE: Recht Hausrath & Associates

The residence patterns forecast using the list of downtown projects leads to similar conclusions. In this case, the residence patterns for downtown workers do not consider changes over time in regional labor force, housing, and employment./15/ The downtown workers estimated using this approach also represent a large share of both the totals and the growth of employed residents in San Francisco and relatively smaller shares of both the totals and growth of employed residents elsewhere in the region. As in the case of the Downtown Plan forecast in 2000, there would not be large changes from the 1984 percentages showing downtown workers relative to the rest of the region's labor force.

Because regional housing supply assumptions are one basis for the forecasts, the above observation that the changes over time in the C-3 District or downtown worker percentages of the region's labor force in each area would not be large indicates that C-3 District/downtown workers would not require much larger shares of the region's housing in the future than they do now. In the future, the relationship between C-3 District/downtown workers and other workers competing for housing in the region would be relatively similar to the conditions in 1984.

In terms of the region's housing market, downtown development and employment growth would not, by themselves, have a major effect on the housing markets in other Bay Area counties or in the region overall. As a part of total regional employment growth to the year 2000, however, increases in San Francisco employment can be viewed as contributing to regional housing demand. A strong regional economy has been and will continue to be a factor supporting a competitive regional housing market with relatively high housing prices and rents.

NOTES - Employment and Housing Factors

/1/ Environmental Science Associates, Inc., "100 First Street Business Displacement Survey", October-December, 1983.

/2/ Indirect employment projections are based on A 1980 Hybrid Input-Output Model for the San Francisco Bay Region, Association of Bay Area Governments, April 1984. A multiplier of 4.04 was used for FIRE sector jobs and 1.75 for construction.

/3/ San Francisco Department of City Planning, Downtown Plan EIR (EE 81.3), certified October 18, 1984, p. IV.D.67.

/4/ Dean Macris, Planning Director, Department of City Planning, Memorandum, January 1982, Interim Guidelines for the Office Housing Production Program.

/5/ San Francisco City Attorney's Office, July 19, 1984, Draft Amendment to Part II, Chapter II of the San Francisco Municipal Code to Impose Conditions on Approval of Permit Applications Designed to Mitigate Housing Problems Caused by Projects.

/6/ San Francisco Department of City Planning, Second Street Square Final EIR, 82.591E, certified January 12, 1984.

/7/ For a description of the methodology used to forecast residence patterns, see Appendix I, Downtown Plan EIR, pp. I.8-I.30. For a description of existing and forecast future residence patterns of C-3 District workers, see Downtown Plan EIR, Section IV.D, Residence Patterns and Housing.

/8/ San Francisco Department of City Planning, Downtown Plan EIR (EE 81.3), certified October 18, 1984, p. IV.D.67.

/9/ In order to ensure consistency with the cumulative transportation analysis and to provide information on region-wide impacts, this section does not use the OHPP formula for estimating the number of workers who would live in San Francisco. This formula only provides an estimate of office workers living in San Francisco; it does not include factors for estimating workers living in other parts of the region. This formula was applied to the project in the project-specific impact section, p. 147-148.

/10/ For the 1984 estimates of workers in the greater downtown area, the C-3 District estimates of employment and residence patterns prepared for the Downtown Plan EIR were used as a base to which order-of-magnitude estimates for that year for the other downtown areas were added. The Transportation Guidelines for Environmental Impact Review: Transportation Impacts, Department of City Planning, September 1983, were used to estimate employment and residence patterns for projects on the March 10, 1984 list for the greater downtown area. The workers associated with these new projects were added to the 1984 base year total estimate.

/11/ As explained in the Downtown Plan EIR, the use of existing space is expected to intensify by the year 2000. For example, office employment growth is forecast to exceed the growth of employment that would be accommodated by the development of new office space. From 1990 to 2000, more intensified use of existing space would be equivalent to about a 40% increase in the net addition of office space forecast for that period. (See p. IV.B.41 in Downtown Plan EIR.)

/12/ This subsection presents a summary of the discussion in the Downtown Plan EIR (see pp. IV.D.77-IV.D.82 and pp. I-1-I.8), which is hereby incorporated by reference pursuant to State CEQA Guidelines, Section 15150.

/13/ As explained earlier, there are several differences in the estimates of employment and residence patterns derived from these two approaches to cumulative analysis. The most important differences are apparent in the two employment estimates shown in this table. The Downtown Plan employment totals for the C-3 District are smaller than the total employment estimate for the greater downtown area, primarily because the latter estimate covers the C-3 District, plus other areas such as the south of Market area, Civic Center, and the northern waterfront. The growth for this larger downtown area is smaller than the C-3 District growth, however, because the list of downtown projects includes known projects, not all development likely to occur by 2000, and also does not incorporate changes in the use of existing space, such as increasing office employment densities.

/14/ Association of Bay Area Governments, Projections '83. This report presents forecasts from 1980 to 2000 of population, employment, households and employed residents for each of the nine Bay Area counties.

/15/ The distribution of downtown workers among the Bay Area counties is based on the residence patterns forecasts for 1984 prepared for the Downtown Plan EIR and on the Department of City Planning's Transportation Guidelines for Environmental Impact Review, September, 1983.

J. GROWTH INDUCEMENT

The project would include about 452,600 gross square feet of office space (a net increase of about 446,100 gross square feet) and about 8,700 square feet of retail and restaurant space (a net decrease of about 13,000 gross square feet). Employment at the site would increase from about 200 to about 1,725 people, an increase of about 1,525. Occupants of the proposed project are not known, but could include tenants currently on the site, tenants expanding or relocating from other San Francisco locations, tenants relocating from outside San Francisco, and firms new to the Bay Area. The increase in employment at the project site, therefore, would not necessarily represent employment that is new to San Francisco. If the project were fully leased, however, and the office space of the project did not create permanent vacancies in other San Francisco office buildings, total employment in San Francisco would increase by about 1,525 jobs due to the project. Approximately 6,160 additional jobs would be supported indirectly in San Francisco through the multiplier effect (see Chapter IV., Impacts, I., Housing and Employment Factors, p. 146).

If marketed successfully, the project, together with other planned office development, could have growth-inducing effects by demonstrating a market for office space in this area. This could thereby encourage similar development on lots (including smaller lots assembled for development) currently occupied by low-rise or mid-rise buildings containing business support services. The demand would reflect the trend of growth in service sector and headquarters office activities and employment in San Francisco. Increases in downtown office space and employment would contribute to continued growth of local and regional markets for housing, goods, and services. These effects would be less extensive were the vacancy rate for office space to rise. Should this occur, projected increases in downtown employment would be less and the growth in demand for goods, services and housing would be lower.

It is expected that some downtown workers, including some in the project, would want to live in San Francisco. Employment growth, however, would not be reflected directly in increases in demand for housing and city services to residents, as some new jobs would be held by individuals who already live and work in the City; who live in the City but previously either did not work, or worked outside the City; who live in surrounding communities; or by those unable to afford or locate housing in the City. New downtown workers would also increase demand for housing in other parts of the Bay Area.

Any net increase in employment downtown would increase the demand for retail goods and services in the area. The project would intensify this demand by increasing the amount of employment on the site and by displacing more retail shops and services than it would replace.

Increases in employment downtown would also increase demand for business services, to the extent that the expanded space would not be occupied by firms providing those services. In response, demand would increase for existing space and possibly for further new development.

The project would be built in a developed urban area, and no expansion to the municipal infrastructure not already under consideration would be required to accommodate new development and increased employment due to, or induced by, the project.

As noted above, the project would displace businesses on the site that include downtown support services, manufacturing uses and loft studio space. The project would continue the trends of loss of industrial and blue collar jobs and the increase in land values and rents in the South of Market area which have been documented by the Department of City Planning./1/

NOTE - Growth Inducement

/1/ Dean Macris, Director of Planning, "Memorandum: South of Market Interim Controls," January 26, 1982.

V. MITIGATION MEASURES PROPOSED TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been, or would be, adopted by the project sponsor or project architects and contractors and thus are proposed; some are under consideration; and some have been rejected. Implementation of some may be the responsibility of public agencies. Measures under consideration or measures rejected by the sponsor may be required by the City Planning Commission as conditions of project approval.

Each mitigation measure and its status are discussed below. Where a measure has not been included in the project, the reasons for this are discussed.

HISTORIC AND ARCHITECTURAL RESOURCES.

MEASURE PROPOSED AS PART OF THE PROJECT

- Prior to issuance of a site permit, the project sponsor shall retain an historical archaeologist (or other qualified expert) to perform archival research and site inspection to determine the potential for discovery of cultural or historic artifacts on the site. Results of this investigation, and a plan for any further investigation that may be appropriate shall be reported to the Environmental Review Officer (ERO). The ERO, in consultation with the Secretary to the Landmarks Preservation Advisory Board and the archaeologist, shall determine whether the archaeologist should instruct all excavation and foundation crews on the project site of the potential for discovery of cultural or historic artifacts, and the procedures to be followed if such artifacts are uncovered. In the event of high probability of discovery of cultural or historical artifacts, the ERO may require that an archaeologist be present during site excavation and record a daily log of observations. The ERO may also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior to or during project excavation even if this results in a delay in excavation activities.

- Should cultural or historic artifacts be found during project excavation, the archaeologist would assess the significance of the find, and immediately report to the ERO and the Secretary of the Landmarks Preservation Advisory Board. The ERO would then recommend specific mitigation measures, if necessary, in consultation with the State Office of Historic Preservation. Excavation or construction which might damage the discovered cultural resources would be suspended for a maximum of four weeks to permit inspection, recommendation and retrieval, if appropriate. This maximum of four weeks shall include any other time periods for which the ERO has required a delay in excavation activities.

URBAN DESIGN AND VISUAL QUALITY

MEASURES PROPOSED AS PART OF THE PROJECT

- To reduce obtrusive light or glare, the project sponsor would not use any mirrored glass on the building.

- The project would include ground-floor commercial and retail uses fronting on Mission and First Streets and a patterned sidewalk design to maintain pedestrian interest. The upper cornice line of the building base would be scaled to the height of neighboring buildings to provide visual continuity.

- The project would include landscape elements, such as mature street trees on Mission and First Streets and planters at the main building entrances. Landscaping plans would be implemented in consultation with the Departments of City Planning and Public Works in order to maintain adequate sidewalk width for pedestrians.

WIND

MEASURES PROPOSED AS PART OF THE PROJECT

- The comfort level of 11 mph would be exceeded in four locations for southwest winds. Section 148 of the proposed ordinances to implement the Downtown Plan specifies that development must "not cause ground level wind currents to exceed, more than 10% of the time year round, between 7:00 a.m. and 6:00 p.m.,

the comfort level of 11 mph equivalent wind speed in areas of substantial pedestrian use." The wind testing methodology is being refined to produce a single value for wind velocity. Further wind analysis of the project using the refined wind methodology will be performed to determine compliance with Section 148. Should the project exceed the Downtown Plan wind comfort levels, it must seek an exception under Sections 148(a) and 309.

MEASURES UNDER CONSIDERATION

- A measurable reduction in wind speeds shown in the wind tunnel test would occur on the north side of Mission Street opposite the site if trees were planted there. The project sponsor would plant street trees on the north side of Mission Street, should the City desire it. Trees on the north side of Mission Street were not modelled in the wind tunnel study.

TRANSPORTATION, CIRCULATION AND PARKING

MEASURES PROPOSED AS PART OF THE PROJECT

- During the construction period, construction truck movement would be permitted only between 9:00 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of Muni buses prior to peak hour. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, the Fire Department, Muni and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects (such as Central Plaza) that are planned for construction or later become known.

- Secure, safe bicycle storage facilities would be provided relative to the demand generated by project commuters and short-term visitors.

- At the request of the Department, the sponsor would provide a fair and equitable in-lieu contribution toward the Transportation Study for the South of Market area.

Alternatively, within a year of full occupancy of the project, the sponsor would conduct a survey, in accordance with methodology approved by the Department of City Planning, to assess actual trip generation patterns of project occupants and actual pick-up and drop-off areas for carpools and vanpools. The project sponsor would make this survey available to the Department. This measure would provide needed information to aid in transportation planning within the City.

- The project sponsor would, in consultation with the Municipal Railway, install eyebolts or make provisions for direct attachment of eyebolts for Muni trolley wires on the proposed building wherever necessary or agree to waive the right to refuse the attachment of eyebolts to the proposed building if such attachment is done at City expense.

- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.

- The project would provide a 15-foot-wide pedestrian arcade on the Mission Street frontage. This arcade would increase the effective sidewalk width by about seven feet and thus serve to improve pedestrian circulation over projected conditions on this sidewalk.

- Building directories and signs for the service elevators would be placed in the loading area.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- The City could adopt and implement the transportation improvements described in the Downtown Plan. Cumulative transportation impacts within San Francisco would be reduced by the improvements and, to the extent that San Francisco can influence transportation improvements recommended in the Plan for areas outside the City, adoption of the Plan will reduce regional cumulative impacts caused by downtown growth.

  Should the Downtown Plan not be implemented by the Board of Supervisors and the Mayor, the City could act to implement the transportation mitigations described in Section V.E., Mitigation, pages V.E.4-28, in the Downtown Plan EIR. These

measures are similar or identical to those in the Downtown Plan and include, in summary: measures to construct and maintain rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; measures to fund Vehicle Acquisition Plans for San Francisco and regional transit agencies to expand existing non-rail transit service; provide exclusive transit lanes on City streets and on freeways; reduce incentives to drive by reducing automobile capacities of bridges and highways in certain circumstances and by discouraging long-term parking; measures to encourage carpools, vanpools, and bicycle use; and measures to improve pedestrian circulation within downtown San Francisco./1/ Some of the Implementing Actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the relevant transportation mitigation measures described above as part of the project or such as the Transit Impact Development Fee assessment required by San Francisco ordinance 224-81 which contribute indirectly to implementation of these system-wide measures, it is not appropriate to impose mitigation at system-wide levels on individual projects.

- Pacific Gas and Electric Company could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place during weekends and off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

NOTE - Transportation, Circulation and Parking

/1/ Department of City Planning, Downtown Plan Environmental Impact Report, EE81.3, certified October 18, 1984, Section V.E., "Transportation and Circulation," pp. V.E. 4-28. This material is hereby incorporated by reference and is summarized in the above text.

AIR QUALITY

MEASURES PROPOSED AS PART OF THE PROJECT

- The project sponsor would implement the mitigation measure identified for housing impacts (see p. 168) to also mitigate air quality impacts. Improving the balance of jobs and housing in San Francisco would reduce long-distance home-to-work travel, and would reduce local and regional emissions of all pollutants.

- The project sponsor would require the general contractor to sprinkle demolition sites with water continually during demolition activity; sprinkle unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other such material; cover trucks hauling debris, soil sand, or other such material; and sweep streets surrounding demolition and construction sites at least once per day to reduce TSP emissions. The project sponsor would require the general contractor to maintain and operate construction equipment so as to minimize exhaust emissions of TSP and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs (to reduce emissions) for equipment that would be in frequent use for much of a construction period.

MEASURES THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- The project sponsor would implement mitigation measures identified for energy impacts (see p. 166) to also mitigate air quality impacts. Reducing electricity generation would reduce local and regional emissions of all pollutants.

- Appropriate agencies could implement mitigation measures identified for traffic impacts (see pp. 162-163) to also mitigate air quality impacts. Increasing roadway capacity (where feasible and cost effective), reducing vehicular traffic through increased ridesharing (carpool, vanpool, and transit), and implementing flexible and/or staggered work hours would reduce local and regional emissions of all pollutants.

OPERATIONAL NOISE

MEASURE PROPOSED AS PART OF THE PROJECT

- As recommended by the Environmental Protection Element of the San Francisco Comprehensive Plan, an analysis of noise reduction measurements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building. Such design features would include fixed windows and climate control.

CONSTRUCTION NOISE

MEASURES PROPOSED AS PART OF THE PROJECT

- The construction contract would require that project contractor muffle and shield intakes and exhaust, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise Ordinance (Article 29, San Francisco Administrative Code, 1972).

- The general contractor would construct barriers around the site, and around stationary equipment such as compressors, which would reduce construction noise by as much as five dBA. The general contractor would locate stationary equipment in pit areas or excavated areas as these areas would serve as noise barriers.

- Project sponsor would require that the construction contractor predrill holes for piles, in order to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five to eight minute span per pile. Project sponsor has agreed to restrict pile driving to hours required by the Department of Public Works.

- The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance to neighboring uses. This would require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2907(c).

ENERGY

MEASURES PROPOSED AS PART OF THE PROJECT

- The project would be more energy-efficient than required by Title 24 of the California Administrative Code.

- A variable-air-volume air conditioning system would control the volume of conditioned air so that the building would maintain a comfortable temperature efficiently.

- A water economizer cycle system using condenser water to generate chilled water would be installed, so that in hot weather the heat exchangers would cool the water without using excessive amounts of electricity.

- The project would incorporate low-flow plumbing to conserve electric energy.

- A carbon monoxide monitoring system would control garage ventilation to avoid unnecessary operation of fans.

- Fluorescent lights with parabolic diffusers would be used to conserve energy and reduce glare. These lights also supply and return conditioned air in lieu of conventional air diffusers. Whenever possible, office suites would be equipped with individualized light switches, time clock operation, and fluorescent lights to conserve electric energy.

MEASURES NOT INCLUDED IN THE PROJECT

- An active solar water-heating system to reduce consumption of electricity could be installed. This measure has been rejected by the project sponsor because water heating would constitute less than three percent of the building's overall energy consumption, and the energy required for pumping the heated water through the centralized distribution system that would be required for solar water-heating would nearly offset the projected energy savings of such a system. The proposed project would use decentralized water heating, with water heated on each floor, to eliminate the energy demands of centralized distribution./1/

- The sponsor could perform a thorough energy audit of the structure's actual energy use after the first year of occupancy and implement all cost effective alterations to the structure's energy system identified in the audit. Results of the audit would be available to the City. This measure was rejected by the project sponsor because the building as planned would be energy efficient.

NOTE - Energy

/1/ Paul Conkel, Senior Associate, Skidmore, Owings and Merrill - Houston, telephone conversation, January 5, 1984.

GEOLOGY, SEISMICITY AND HYDROLOGY

MEASURES PROPOSED AS PART OF THE PROJECT

- A detailed geotechnical report would be prepared by a California-licensed engineer for the project sponsor. The project sponsor and contractor would follow recommendations made in that report regarding project excavation and construction.

- The final soils report to be prepared by the California-licensed engineer for this project would address the potential settlement and subsidence impacts of dewatering of the site. Based upon this discussion, the soils report shall contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Article 3 of the Building Code) would be retained by the project sponsor to perform this monitoring. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. Costs for the survey and any necessary repairs to services under the street would be borne by the contractor. Groundwater pumped from the site during dewatering would be retained in a holding tank to allow suspended particles to settle (if this were found necessary by the Industrial Waste Division of the Department of Public Works) to prevent sediment from entering the storm drain/sewer lines.

HAZARDS

MEASURES PROPOSED AS PART OF THE PROJECT

- An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the mayor's office of Emergency Services (OES), to insure coordination between the City's emergency planning activities and the project plan and to provide services to building occupants in the event of an emergency. The project emergency plan would be reviewed by the OES and implemented by building management insofar as feasible before issuance by the Department of Public Works of final building permits.

- To expedite implementation of the City's emergency response plan, the project sponsor would prominently post information for building occupants concerning what to do in the event of a disaster.

EMPLOYMENT AND HOUSING FACTORS

MEASURE PROPOSED AS PART OF THE PROJECT

- The project sponsor would mitigate the net housing demand of 399 units generated by the project. The project sponsor has secured preliminary approval from the Department of City Planning for 216 housing credits as part of the approved Metroplace housing project in San Francisco/1/, and proposes to fulfill the remaining housing requirement either by direct sponsorship of a housing development or by provision of financial aid to a housing development, as provided in the City's Office Housing Production Program (OHPP)./2, 3/ The OHPP program allows units or "credits." "Credits" and "units" are not interchangeable. Credits are given on a two- (or more) for-one basis for moderate- or low-income units. Multiple credits are allowed under OHPP Guidelines for these units to "promote and stimulate the production of affordable housing." The use of credits generally results in fewer units than the demand projected, while the units thus produced tend to be in the lower-income range. The City Planning Commission would determine whether proposed measures would mitigate housing demand caused by the project. As discussed in the Chapter IV, Impacts, I, p. 148, the OHPP guidelines are

currently being revised. These revisions may affect the total project-related housing demand and remaining unmitigated housing demand discussion above.

NOTE - Employment and Housing

/1/ San Francisco Department of City Planning, Metroplace Residential/Commercial Development Negative Declaration (83.462E), April 6, 1984. This document is on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

/2/ Mayor's Office of Housing and Community Development, January 22, 1982, Citywide Affordable Housing Program.

/3/ Dean Macris, Planning Director, Department of City Planning, Memorandum, January 1982, Interim Guidelines for the Office Housing Production Program.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

The chapter is subject to final determination by the City Planning Commission as part of its certification process. Chapter VI of the Final EIR will be revised, if necessary, to reflect the findings of the Commission.

No project-specific significant impacts have been identified. Mitigation measures included as part of the project are described in Chapter V., Mitigation Measures, p. 159.

Cumulative development in Downtown San Francisco would have a significant effect on the environment in that it would generate cumulative traffic increases as well as cumulative passenger loadings on Muni, BART and other regional transit carriers. These cumulative transportation impacts would cause violations to total suspended particulate (TSP) and localized carbon monoxide (CO) standards in San Francisco with concomitant health effects and reduced visibility. The proposed project would contribute to these cumulative effects.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project, discusses environmental impacts associated with these alternatives, and gives the reasons the alternatives were rejected in favor of the project. It includes discussion of the project design under the City Planning Code (September 1979) without amendments implementing the Downtown Plan. Regardless of the sponsor's reasons for rejection, the City Planning Commission could approve an alternative over the proposed project if the Commission believed the alternative would be more appropriate for the site.

A. ALTERNATIVE A: NO PROJECT

DESCRIPTION OF ALTERNATIVE

This alternative would entail no change to the site. The proposed project would not be built there. Six existing buildings, housing 23 businesses, that are proposed to be demolished would be retained.

DISTINCTIVE ENVIRONMENTAL CHARACTERISTICS OF ALTERNATIVE

The environmental characteristics of this alternative would be generally as described in the Environmental Setting sections of this Report (see Chapter III, Setting, pp. 29-59, for a discussion of existing conditions). Transportation and noise impacts associated with building construction and the demolition of six on-site buildings would not occur. Transportation, transit and air quality conditions (as described in Chapter IV., Impacts, E. and F., pp. 95 - 135 as base conditions with cumulative development, but without the project, would exist around the site. There would be no change in the demand from the site for energy or community services. Employment on the site would not increase (as it would with the project) from about 200 existing to 1,725 jobs. Revenues from and costs of the project would not result. Land uses, site views, shadows and winds would not change. Four buildings rated "C" by Heritage and two unrated buildings would be preserved. The parking garage at 521 Mission Street would not be renovated, refaced, or roofed with a publicly accessible sun terrace.

This alternative could result in the development of other office space, possibly a high-rise building comparable to the project, at another location. Alternative development within the San Francisco Downtown area would result in many of the same impacts as described for the project. The effects of development would depend largely on the location chosen and cannot be accurately determined. This alternative would preserve the option to develop a similar or different type of building on the site in the future.

SPONSOR'S REASONS FOR REJECTION

This alternative was rejected by the project sponsor because it would not use the development potential of the site allowable under the Downtown Plan or City Planning Code (1979 Code). The project sponsor has rejected an alternative location in San Francisco or elsewhere in the Bay Area because there is no site with better transit access or which would meet the sponsor's objectives as well as would the project site (for the sponsor's objectives, see Chapter II, Project Description, p. 12).

B. ALTERNATIVE B: REDUCED SHADOW, 4.6:1 FAR

DESCRIPTION OF ALTERNATIVE

The reduced-shadow alternative would comply with the provisions and suggested guidelines of the proposed Downtown Plan. A seven-story, 110-foot-tall office building with ground-floor retail uses would be developed on Lots 1, 2, 3, 4, 5 and 87 of the project site. Lot 84 would be omitted from the proposal; no sun terrace would be constructed on top of the parking garage at 521 Mission Street. This alternative would be about 275 feet shorter and contain about 335,300 square feet less office space than would the proposed project. After excluding about 10,200 square feet of mechanical space and ground-floor retail, lobby, circulation, and building support space (as provided for in the Downtown Plan), approximately 117,300 gross square feet of offices would apply to the FAR, for an FAR of 4.6:1.

The base of the building would cover the entire site (excluding Lot 84). The reduced-shadow alternative would include an open pedestrian arcade approxaimtely seven feet wide along Minna Street. It would comply with the Plan by providing street trees and patterned sidewalks, as would the proposed project. Three loading docks would be

accessible from Minna Street. The building base would consist of levels one through four; each level would have a floor area of about 25,700 gross square feet. At 60 feet in height, levels five through seven would be stepped back progressively from the base building to the building top at about 110 feet (see Figure 31).

As with the project, the alternative would require the demolition of the six buildings on the site that would be demolished to permit construction of the proposed project. None of the buildings are recommended for preservation by the Plan.

DISTINCTIVE ENVIRONMENTAL CHARACTERISTICS OF REDUCED-SHADOW ALTERNATIVE

This alternative would be 275 feet shorter than the project and, therefore, less visible in mid- and long-range views. Setbacks above 60 feet along Minna, First and Mission Streets would reflect typical heights of older buildings in the area, including development to the west along Minna Street. The reduced-shadow alternative would have three additional setbacks above the 60-foot level, compared to the project's tapered profile above the 21st floor. The parking garage at 521 Mission Street would not be renovated and refaced. The vest pocket park and 14,000-square-foot sun terrace proposed above the garage as part of the project would not be built. The alternative would not require the exceptions to Downtown Plan bulk and loading provisions under Section 309 that the project would require.

Section 147 of the proposed Downtown Plan amendments to the Planning Code calls for reduction of substantial shadow impacts on public plazas and publicly accessible spaces, within the dictates of good design and without unduly restricting the development potential of the site in question. The alternative would not cast shadows on the open and passenger unloading area in front of Transbay Terminal from March 21 through September 21. During winter afternoons the open space would be shaded by this alternative. In determining the impact of shadows under Section 147, the amount of area shadowed, duration of the shadow, and importance of sunlight to the utility of the open space must be taken into account. The Transbay Terminal open area is used primarily as a pedestrian corridor between the Terminal and the Financial District.

The Plan requires a 1:50 ratio of open space to building space as part of development in the C-3-0 district, or 2,350 square feet for this alternative. The project's sun

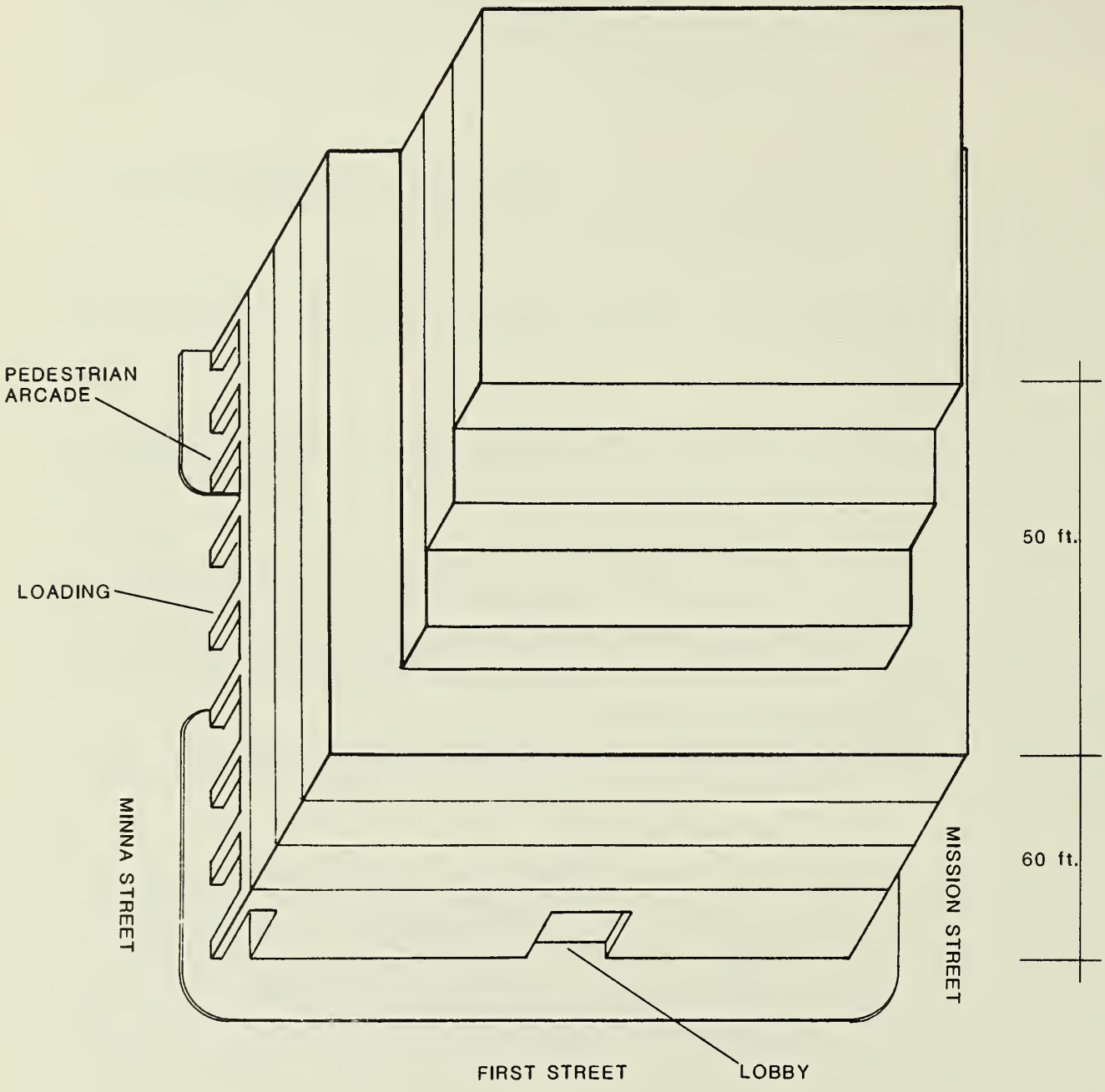


FIGURE 31:
REDUCED-SHADOW ALTERNATIVE
ISOMETRIC VIEW
100 FIRST STREET

SOURCE:
SKIDMORE, OWINGS AND MERRILL - HOUSTON

terrace would not be built, because the parking garage at 521 Mission Street would not be part of the site. The alternative would meet the open space requirement through the provision of ground-floor open space features such as an art gallery in the lobby, an atrium, an indoor park, a public sitting area in a galleria, or a greenhouse.

The Plan would require one and one-half percent of construction costs to be invested in publicly visible works of art, such as sculpture or murals. As with the proposed project, the alternative would meet this requirement.

Off-street loading space standards proposed in the Plan would require three spaces for this alternative, which would be provided on Minna Street. The Plan discourages new long-term parking in the Downtown core, limiting new long-term parking facilities to those needed to replace parking eliminated in the core. The alternative design would have no new parking.

The alternative would provide employment for about 460 new employees, compared to 1,725 new employees for the proposed project. It would generate a demand for about 101 new dwelling units in San Francisco, based on OHPP, compared to 399 for the project.

Transportation, circulation, parking, air quality and transportation energy impacts associated with on-site uses would be proportionately less than those of the proposed project, as the alternative would have about 26% of the office space proposed for the project. If driven piles were used, construction noise impacts would be comparable in intensity to those of the proposed project. Construction activities would be shorter in duration because the smaller building would require less time to construct. Energy used to operate the building would be proportionately lower than for the project as proposed.

SPONSOR'S REASONS FOR REJECTION

The project sponsor's decision to purchase and develop the project site with a major project was made on the basis that the Downtown Plan states that it encourages concentration of future major downtown building growth in the eastern South of Market area. The alternative described above would be greatly reduced in size in order to avoid shading the Terminal open space and passenger unloading areas. In the view of the sponsor, it would not constitute the kind of development encouraged for the project area

by the Downtown Plan. Employment provided by the alternative would be less than one-third that provided by the project. Shadow studies for the project show that any structure built on this site higher than two stories would shade the open and passenger unloading area in front of the Transbay Terminal and any structure higher than the existing buildings would cause increased shadow on the open and unloading area, especially during the winter months. The sponsor believes that the uses of the Terminal open area are not those for which, under Section 147, sunlight is important to utility of use.

The project sponsor asserts that elementary principles of city planning support the placement of major new developments at centers of transit activity providing commuter service from various parts of the Bay Area. The scaled-down, reduced-shadow alternative would not, in the sponsor's view, adequately use the potential of a site located next to the Transbay Terminal and between two BART stations. The project sponsor maintains that the interplay of major high-rise structures and adjacent open space is an important part of modern urban design, which emphasizes architectural design and the integration of open spaces and their enclosing architecture.

C. ALTERNATIVE C: INTERIM CONTROLS, 10:1 FAR

On November 29, 1984, the City Planning Commission adopted the Downtown Plan and approved amendments to the City Planning Code to implement the Plan (Permanent Controls, Resolution No. 10165). The amendments must be acted on by the Board of Supervisors and signed by the Mayor, actions expected to take several months. Therefore, the Commission adopted Interim Controls (Resolution No. 10166), to remain in effect for six months and safeguard against inappropriate development while the Permanent Controls are under consideration by the Board of Supervisors and the Mayor. The primary difference between the Interim and Permanent Controls is that the building preservation and transfer of development rights (TDR) provisions of the Permanent Controls are excluded from the Interim Controls. The project as proposed would include the transfer of 54,900 gross square feet of development rights from 74 New Montgomery Street. This alternative considers a building without TDR. The building design and envelope for this alternative would be identical to the proposed project. The FAR would be reduced from 11.4:1 to 10:1, based on interpretation of Section 102.8(b)13, in the following manner.

Office space would be reduced from 452,600 gross square feet to 396,000 square feet; 9,000 square feet of the parking garage would also apply to the FAR calculations, for a gross floor area applicable to the FAR of 405,000. Retail and restaurant space would increase from 8,700 square feet to 29,000 square feet, and would be located on the ground floor and second- and third-level mezzanines (see Figures 32 and 33, pp. 178 and 179). Because the retail and restaurant space would be on the ground floor and mezzanine levels, it is proposed under this alternative that this space not be applicable to the FAR under the Plan. An atrium would be added on the second-level mezzanine facing the sun terrace. An escalator would lead to the third-level mezzanine. The sun terrace and vest pocket park would be the same as the proposed project.

Urban design, visual quality, shadow and wind effects of the Interim Controls Alternative would be identical to those of the proposed project. The relationship of the alternative to the Downtown Plan would be similar to that of the project. As with the project, exceptions under Section 309 for upper-tower bulk and freight-loading maneuvering room would be needed. No TDR would be requested. No permanent protection would be afforded 74 New Montgomery Street, a Downtown Plan Category I building.

The Plan requires a 1:50 ratio of open space to building space as part of development in the C-3-O District, or 8,100 square feet for this alternative. This alternative would meet the open space requirements through the provision of a sun terrace, vest pocket park, and lobby art exhibition area. The Downtown Plan requires one and one-half percent of construction costs to be invested in publicly visible works of art, such as sculpture or murals. As with the proposed project, the alternative would comply.

This alternative would generate about 34% more travel on both a daily and peak-period basis than would the project. Because the increase in travel would result from the increase in retail space, the net new outbound p.m. peak-hour and peak-period travel from this alternative would be about ten percent greater than that from the project.

Because of the decrease in office space in this alternative compared to the project, the long-term parking demand for this alternative would be reduced by about ten percent from that of the project; the increased retail space in this alternative would increase the short-term parking demand by about 160%, for an overall decrease in the equivalent daily parking demand of the project of six percent.

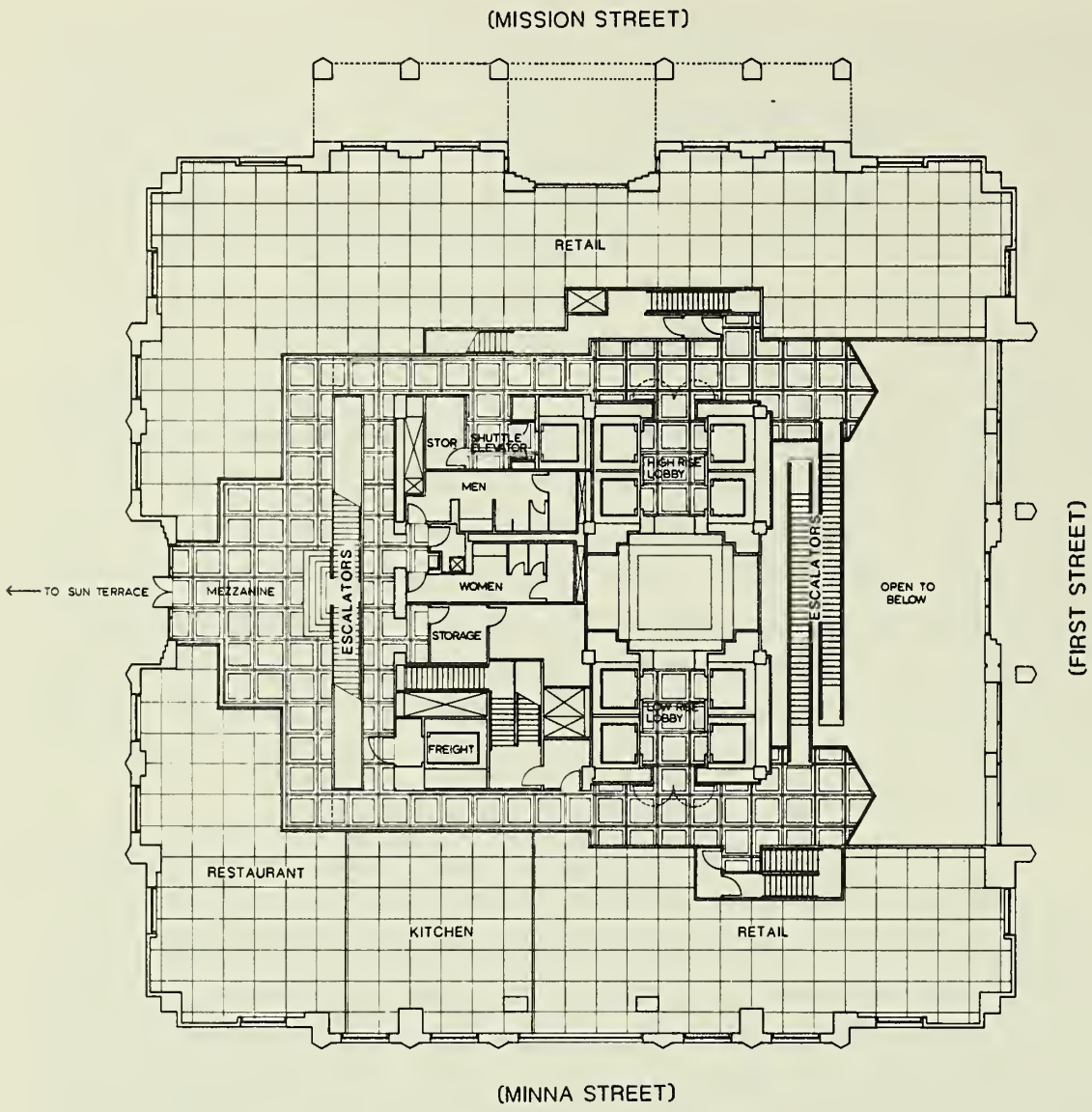


FIGURE 32:
INTERIM CONTROLS ALTERNATIVE
SECOND-LEVEL MEZZANINE PLAN
100 FIRST STREET

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

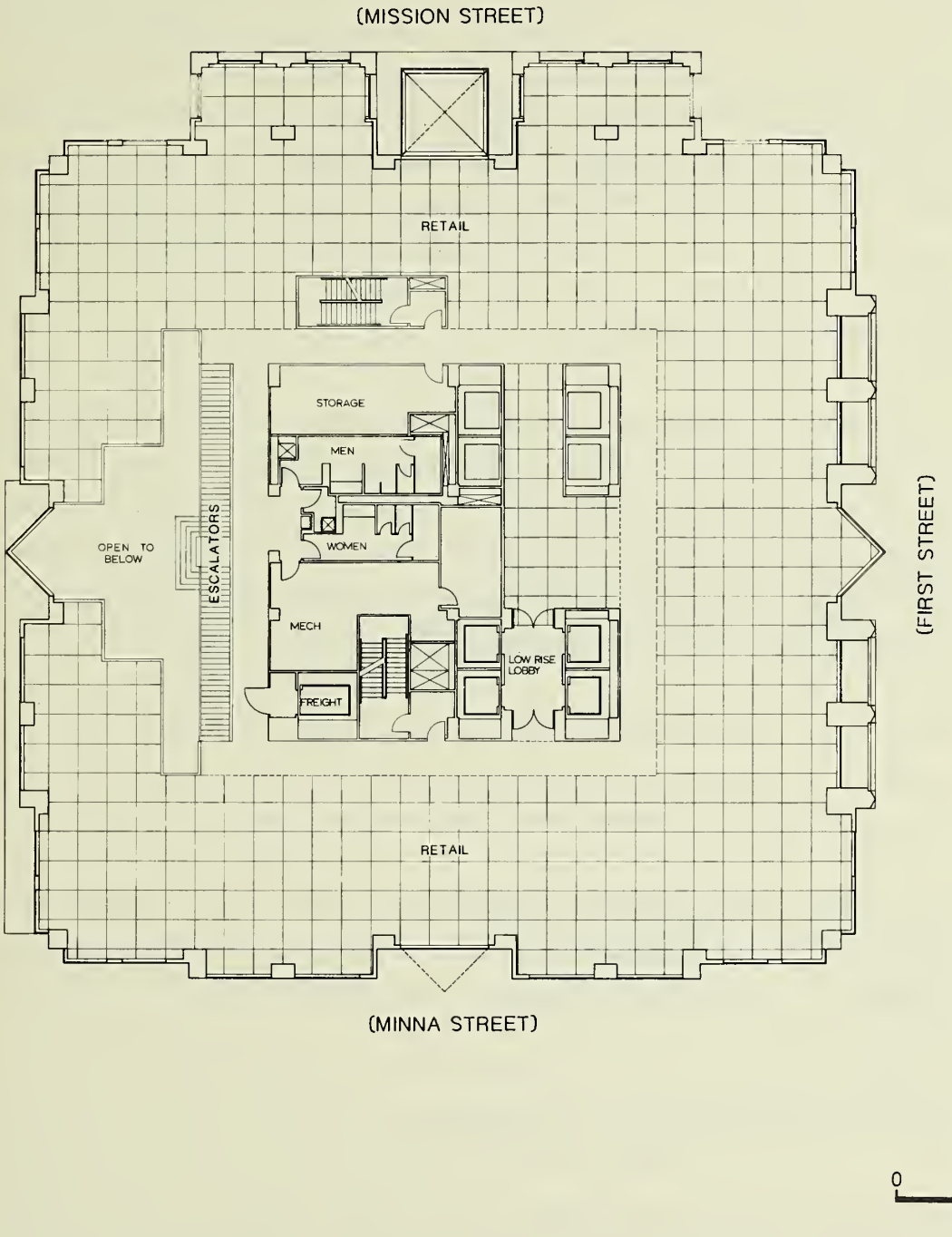


FIGURE 33:
INTERIM CONTROLS ALTERNATIVE
THIRD-LEVEL MEZZANINE PLAN
100 FIRST STREET

SOURCE
SKIDMORE OWINGS AND MERRILL - HOUSTON

Peak-hour and peak-period auto and transit travel from this alternative would be about four percent less than from the project, primarily as a result of the decrease in office space. The overall increase in peak-period travel from this alternative would be from pedestrian travel which would increase substantially as a result of the increased retail space in the alternative. Thus, this alternative would be expected to have impacts similar to those of the project on transit and freeway corridors and at intersections near freeway on-ramps during the p.m. peak period. Pedestrian impacts from this alternative would be greater than those of the project.

The demand for loading and service vehicle space from this alternative would be similar to that from the project. Under the Downtown Plan (November 1984), this alternative and the project would require the same number (five) of loading spaces. Both would comply by providing four freight and two service vehicle spaces accessible from Minna Street. Both would require an exception under Section 309 because all of the maneuvering room for trucks would not be provided within the site.

Energy used to operate the building would be about the same as that for the project as proposed. Air quality and transportation energy impacts would be about 34% greater than those of the project. Construction effects would be similar to those of the project.

The alternative would provide employment for about 1,575 employees, compared to 1,725 employees for the proposed project. It would generate a demand for about 346 new households in San Francisco, based on the OHPP, compared to 399 for the proposed project.

SPONSOR'S REASONS FOR REJECTION

This alternative has been rejected by the project sponsor because it would provide fewer employment opportunities and generate greater transportation and air quality impacts than would the proposed project. The alternative would be considered by the sponsor for presentation as the preferred development if the Interim Controls are still in effect at the time the project is considered by the City Planning Commission.

D. ALTERNATIVE D: 1979 CITY PLANNING CODE WITHOUT AMENDMENTS IMPLEMENTING THE DOWNTOWN PLAN, 11.9:1 FAR

The building design and envelope considered in this alternative would be identical to the proposed project. It is discussed here to evaluate the compliance of the proposed project with the provisions of the San Francisco City Planning Code (September 1979), without the proposed amendments implementing the Downtown Plan.

Under the 1979 Code, a building's gross floor area is measured differently than under the Downtown Plan. The Downtown Plan excludes from the overall gross floor area ground-floor pedestrian circulation and building service space, and retail, religious, social service and convenience personal service uses located on the ground floor or mezzanine level. The 1979 Code requires the gross floor area to be measured from the outside of the exterior building walls, while the Plan requires measurement from the interior window glass line. This would result in a slightly larger office floor area measurement for the same amount of development under the 1979 Code./1/ The gross floor area of the proposed project as measured under the requirements of the 1979 Code thus would differ as follows from the gross floor area as measured under the requirements of the Downtown Plan (see Table 19).

Under the provisions of the 1979 Code, the basic allowable FAR in the C-3-0 (Downtown Office) Use District is 14:1. With an FAR of 11.9:1, the same development program as the project would comply with this requirement. The 385-foot project tower would be about 115 feet shorter than the maximum height of 500 feet permitted in the pre-Downtown Plan 500-I Height and Bulk District. The building length of about 145 feet would be about 25 feet less than the maximum length of 170 feet permitted above 150 feet in height. The diagonal dimension of about 185 feet would be about 15 feet less than the permitted maximum diagonal dimension of 200 feet above 150 feet in height.

Two freight loading spaces would be required under the 1979 Code; four freight and two service vehicle spaces would be provided. No parking would be required by the 1979 Code and no new parking would be provided. Accessory parking (85 spaces) equalling seven percent of the gross floor area, as permitted by the Code, would be provided in the retained and rehabilitated garage at 521 Mission Street.

TABLE 19: COMPARISON OF GROSS FLOOR AREA APPLICABLE TO FAR UNDER THE 1979 CITY PLANNING CODE AND THE DOWNTOWN PLAN

Use	1979 City Planning Code	Downtown Plan
Parking Garage	9,150	7,300
Lobby	2,900	0
Retail	5,800	0
Other Ground Floor	7,700	0
Restaurant (Mezzanine)	2,900	0
Offices	454,800	452,600
TOTAL	483,250	459,900
PERMITTED FAR:	14:1	10:1
ALTERNATIVE FAR:	11.9:1	11.4:1 /a/

/a/ Under the Downtown Plan, 54,900 square feet of TDR would be transferred from 74 New Montgomery Street, a Category I building. The FAR on the combined preservation and development lots would be less than 10:1.

Since this alternative would be identical to the proposed project, the alternative's relationship to the policies and objectives of the San Francisco Comprehensive Plan would not differ from that discussed in Section IV., Impacts, A., pp. 67-68. Similarly, the alternative's environmental impacts would be identical to those discussed in Chapter IV, Impacts, pp. 60 - 158.

NOTE - Alternative D

/1/ Section 102.8 as proposed to implement the Downtown Plan would require the sum of the gross areas of several floors to be measured along the glass line of windows at a height of four feet above the finished floor and along a projected straight line parallel to the overall building wall plane connnecting the ends of individual windows, provided that such line shall not be inward of the interior face of the wall. The 1979 Code, in contrast, requires the floor area of a building to be measured from the exterior faces of exterior walls or from the center lines of walls separating two buildings.

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San Francisco, CA 94104

San Francisco Beautiful
41 Sutter Street
San Francisco, CA 94104
Attn: Mrs. H. Klussmann, President

San Francisco Building and
Construction Trades Council
400 Alabama Street, Room 100
San Francisco, CA 94110
Attn: Stanley Smith

San Francisco Chamber of Commerce
465 California Street
San Francisco, CA 94105
Attn: Richard Morten

San Francisco Christian School
699 Serramonte Blvd.
Daly City, CA 94105
Mr. John Innes

San Francisco Convention &
Visitors Bureau
201 3rd Street, Suite 900
San Francisco, CA 94103
Attn: George D. Kirkland,
Executive Director

San Francisco Ecology Center
13 Columbus Avenue
San Francisco, CA 94111

San Francisco Junior Chamber of
Commerce
251 Kearny Street
San Francisco, CA 94104

San Francisco Labor Council
1855 Folsom Street
San Francisco, CA 94103
Attn: Bernard Speckman

San Francisco Organizing Project
1208 Market Street
San Francisco, CA 94102

San Francisco Planning &
Urban Research Association
312 Sutter Street
San Francisco, CA 94108

San Franciscans for Reasonable Growth
241 Bartlett Street
San Francisco, CA 94110
Attn: David Jones

San Francisco Tomorrow
942 Market, Room 505
San Francisco, CA 94102
Attn: Tony Kilroy

John Sanger & Associates
3600 Washington Street
San Francisco, CA 94118

Senior Escort Program
South of Market Branch
814 Mission Street
San Francisco, CA 94100
Attn: Neighborhood Coordinator

Sierra Club
530 Bush Street
San Francisco, CA 94105
Attn: Becky Evans

Skidmore, Owings and Merrill
400 One Shell Plaza
Houston, TX 77002-4906
Attn: Craig Taylor

Robert Snook
Wells Fargo Bank
475 Sansome Street, 19th Floor
San Francisco, CA 94111

South of Market Alliance
74 Langton Street
San Francisco, CA 94103

Square One Film & Video
725 Filbert Street
San Francisco, CA 94133

Wayne E. Stiefvater, President
Appraisal Consultants
701 Sutter Street
San Francisco, CA 94109

Tenants and Owners Development Corp.
230 - Fourth Street
San Francisco, CA 94103
Attn: John Elberling

Rod Teter
Cahill Construction Company
425 California Street, Suite 2300
San Francisco, CA 94103

Jerry Tone, Loan Officer
Real Estate Industries Group
Wells Fargo Bank, N.A.
475 Sansome Street, 19th floor
San Francisco, CA 94111

Timothy A. Tosta
333 Market St., Suite 2230
San Francisco, CA 94105

Jeff Vance
Campeau Corp. of California
1 Montgomery St., 22nd Floor
San Francisco, CA 94104

Kathy Van Velsor
19 Chula Lane
San Francisco, CA 94114

Steven Weicker
899 Pine Street, #1610
San Francisco, CA 94108

Calvin Welch
Council of Community Housing
Organizations
409 Clayton Street
San Francisco, CA 94117

Howard Wexler
235 Montgomery, 27th floor
San Francisco, CA 94104

Eunice Willette
1323 Gilman Avenue
San Francisco, CA 94124

Leslie Yee
1531 Powell Street
San Francisco, CA 94133

Marie Zeller
Whisler-Patri
590 Folsom Street
San Francisco, CA

ADJACENT PROPERTY OWNERS

The Shenk Living Trust TRs
c/o Martin & Patricia Shenk
22 Coleman Ct.
San Carlos, CA 94070

State of California
Caltrans District 04
150 Oak Street
San Francisco, CA 94102

Richard and Janice Fiore
c/o Fiore & Co.
510 Mission Street
San Francisco, CA 94105

Victor & Lorraine Honig
88 First Street, No. 210
San Francisco, CA 94105

Robert & Geo. Marchand
c/o Buckbee Thorne Co.
555 California Street
San Francisco, CA 94104

Wells Fargo Bank TR
c/o Western Pacific RR
526 Mission Street
San Francisco, CA 94105

Delta Finance Co. Ltd.
526 Mission Street
San Francisco, CA 94105

Bank of America etc. TR
536 Mission St.
San Francisco, CA 94105

Golden Gate University
c/o John H. Teitscheid
536 Mission St.
San Francisco, CA 94105

Terminal Plaza Corporation
450 Mission Street
San Francisco, CA 94105

MEDIA

San Francisco Bay Guardian
2700 - Nineteenth Street
San Francisco, CA 94110
Attn: Patrick Douglas, City Editor

San Francisco Business Jounral
635 Sacramento Street, Suite 310
San Francisco, CA 94111
Attn: Kirstin E. Downey

San Francisco Chronicle
925 Mission Street
San Francisco, CA 94103
Attn: Evelyn Hsu

San Francisco Examiner
P.O. Box 7260
San Francisco, CA 94120
Attn: Gerald Adams

San Francisco Progress
851 Howard Street
San Francisco, CA 94103
Attn: E. Cahill Maloney

The Sun Reporter
1366 Turk Street
San Francisco, CA 94115

Tenderloin Times
146 Leavenworth Street
San Francisco, CA 94102
Attn: Rob Waters

LIBRARIES

Cogswell College Library
600 Stockton Street
San Francisco, CA 94108

Document Library
City Library - Civic Center
San Francisco, CA 94102
Attn: Faith Van Liere

Environmental Protection Agency Library
215 Fremont Street
San Francisco, Ca 94105
Attn: Jean Circiello

Stanford University Library
Stanford, CA 94305

Government Publications Department
San Francisco State University
1630 Holloway Avenue
San Francisco, CA 94132

Hastings College of the Law - Library
200 McAllister Street
San Francisco, CA 94102-4978

Institute of Governmental Studies
1209 Moses Hall
University of California
Berkeley, CA 94720

X. APPENDICES

APPENDICES

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DEPARTMENT OF CITY PLANNING 450 McAllister St. - 5th Floor
(415)558-5260

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: January 6, 1984

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister St. - 5th Floor, San Francisco CA 94102

Agency Contact Person: Carol Roos **Tel:** (415) 558-5261

Project Title: 83.331E
100 First Street

Project Sponsor: Barker Interests Limited

Project Contact Person: C. Dean Patrinely

Project Address: 100 First Street

Assessor's Block(s) and Lot(s): Lots 1, 2, 3,4,5 and 87 in Assessor's Block 3721

City and County: San Francisco

Project Description: Demolition of six buildings. Construction of 22-story, 320-foot tall building containing about 359,670 gross sq. ft., including about 348,920 gross sq. ft. of offices, 9,050 gross sq. ft. of retail and 30 parking spaces with loading off Minna Street. Buildings to be demolished include 511-519 Mission, 501-507 Mission, 104-106 First, 110 First, 112 First, 116 First, 118-124 First (At Minna)

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15081 (Determining Significant Effect), 15082 (Mandatory Findings of Significance) and 15084 (Decision to Prepare an EIR), and the following reasons, as documented in the Initial Evaluation (initial study) for the project, which is on file at the Department of City Planning:

Please see the attached Initial Study.

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: January 16, 1984.

An appeal requires 1) a letter specifying the grounds for the appeal, and 2) a $35.00 filing fee.

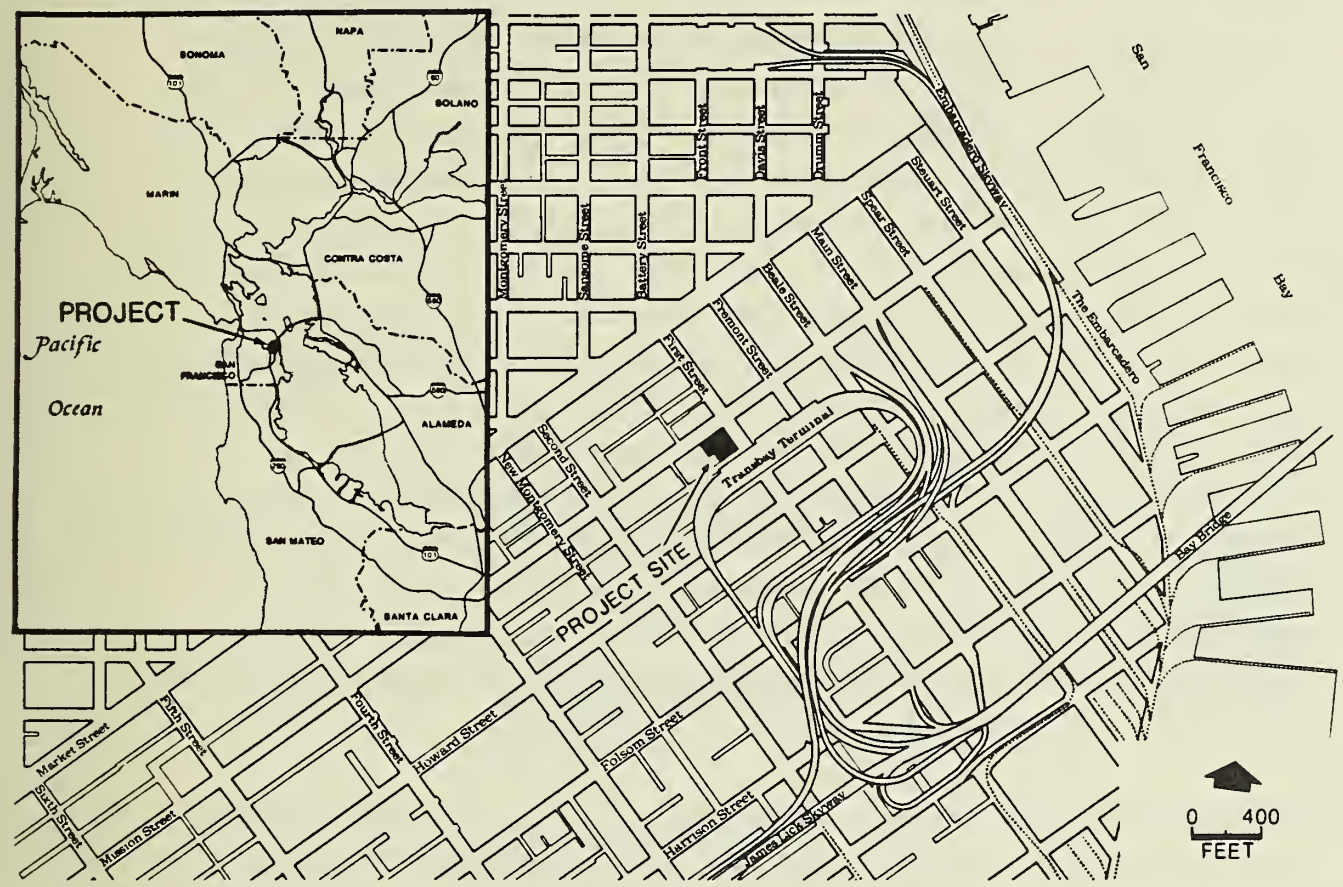
Alec S. Bash, Environmental Review Officer

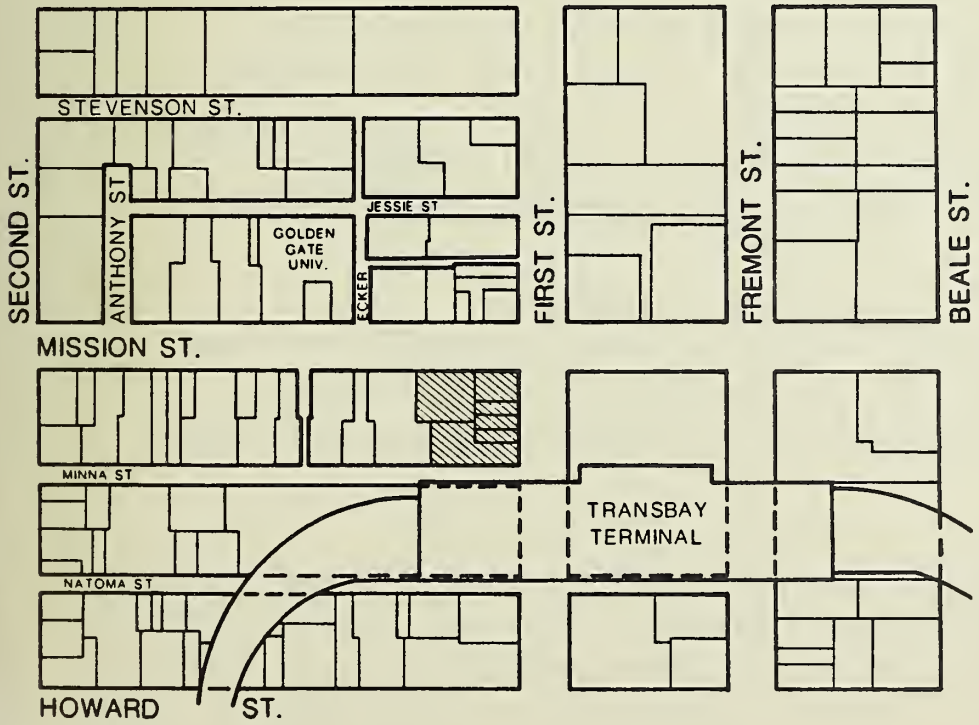
INITIAL STUDY
100 FIRST STREET
83.331E

I. PROJECT DESCRIPTION

Barker Interests Limited proposes to construct a 22-story office tower with ground-floor retail at the southwestern corner of the intersection of First and Mission Streets. The project architects are Skidmore, Owings and Merrill - Houston. The irregularly shaped site occupies Lots 1, 2, 3, 4, and 87 of Assessor's Block 3721. The block is bounded by Mission Street to the north, First Street to the east, Minna Street to the south, and Second Street to the west (see Figure 1). The 25,700-sq.-ft. site is occupied by six buildings, ranging from one to five stories and containing restaurant, retail, downtown support, amusement enterprise and light-manufacturing uses. All six buildings would be demolished for the project. The site is located in the C-3-O (Downtown Office) Use District and in a 500-I Height and Bulk district. The Basic Allowable Floor Area Ratio (FAR) is 14:1, with a maximum height of 500 ft., and maximum length and diagonal dimensions above 150 ft. of 170 and 200 ft., respectively.

The 22-story project would be about 320 ft. high and contain about 348,920 gross sq. ft. of office space, 9,050 gross sq. ft. of retail space, and about 30 parking spaces. The overall project would have a gross floor area, as defined by the City Planning Code, of about 359,670 sq. ft., resulting in an FAR of 13.99:1, about 14:1.





PROJECT SITE
(Assessor's Block 3721, Lot Nos. 1, 2, 3, 4, 5, & 87)

0 200
FEET

FIGURE 1:
PROJECT LOCATION
100 FIRST STREET

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES

A lower basement level would be devoted to mechanical operations, a water storage tank, and building maintenance equipment. An upper basement level would contain about 30 off-street parking spaces. The basement levels would extend under the Mission Street sidewalk. The ground floor would contain retail uses and pedestrian circulation, with pedestrian entrances on Mission and First Streets (see Figure 2). Three truck loading docks and access to the parking garage would be on Minna Street. Escalators would lead from the ground-floor lobby to the second level, which would contain the main office lobby and elevator access to the 22-story office tower. Levels 3 through 11 would be accessible by a low-rise elevator, levels 12 through 17 by a high-rise elevator, and levels 18 through 21 by an express shuttle elevator from the 17th floor. The typical floor area would be about 19,750 sq. ft. for office floors between the fifth and the 14th levels; levels 15 through 22 would feature progressively smaller floor areas. All levels above the second floor would contain office space, with the exception of the 22nd floor, which would be for mechanical uses.

Light-colored granite would be combined with clear glass windows at street level to emphasize the retail uses. Two light-colored limestone cornices or belt courses at the third and fifth floors would define the four-story base of the building. Windows would be located on all four sides of the building with the exception of the west side of the base where the project abuts the adjacent property, and at the first level on Minna Street where the garage entry and loading docks would be located. The pedestrian area at street level would be paved on all adjacent sidewalks and in entryways with patterned stone or stone aggregate. Street trees would be provided along Mission and First Streets.

The tower design would have a sculptured perimeter of bays an all four sides of the building (see Figure 2). The cladding of the tower would be a combination of light-colored stone, either limestone and/or granite, and gray tinted glass.

The building top would be set back from First Street in two steps beginning at the 16th and 18th levels, yielding a three-part roof design. The three roofs would slope down toward Mission and Minna Streets and be clad in gray tinted glass with colored mullions compatible with the glass color (see Figure 3, p. 5).

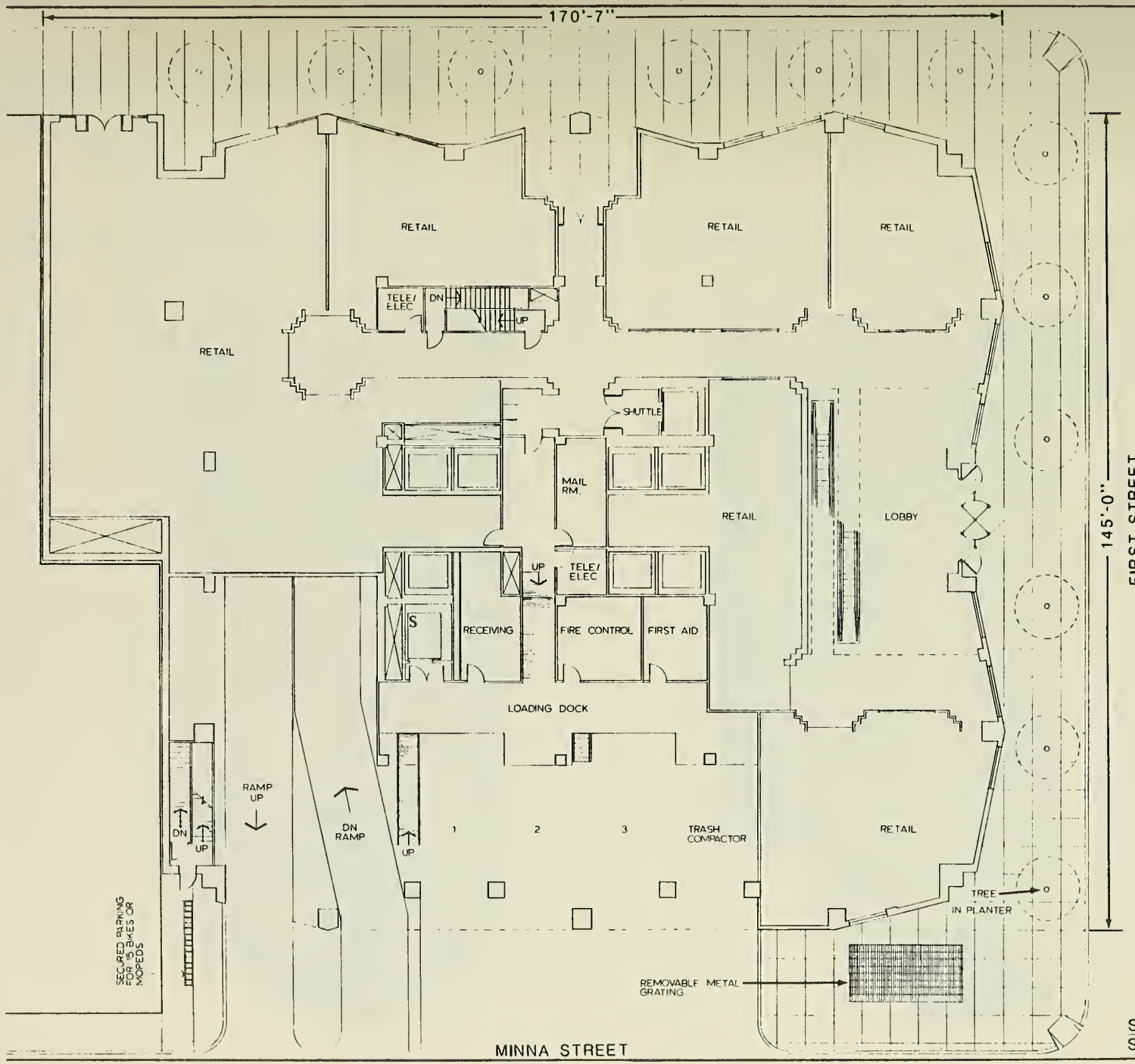


FIGURE 2:
GROUND LEVEL

SOURCE
Skidmore, Owings, & Merrill

SOURCE
SKIDMORE, OWINGS AND MERRILL - HOUSTON

FIGURE 3:
FIRST AND MISSION STREET ELEVATIONS
100 FIRST STREET

II. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

The proposed project is examined in this Initial Study to identify potential effects on the environment. Some potential effects have been determined to be potentially significant, and require analysis in an environmental impact report (EIR). They include: relationship of the proposed building to the Comprehensive Plan; relationship of the proposed building to, and its effect on, land uses in the project vicinity; visual quality and views affected by the project; urban design; wind and shadows; housing demand; transportation; construction noise and vibration; traffic-generated air quality effects; energy; and possible growth-inducing effects.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potential environmental impacts were determined either to be insignificant, or would be mitigated through measures included in the project. These items require no further environmental analysis and will not be addressed in the EIR:

Noise: After completion, building operation would not perceptibly increase noise levels in the project vicinity. Operational noise would be regulated by the San Francisco Noise Ordinance and the project would conform to the Noise Guidelines of the San Francisco Comprehensive Plan (see p. 21).

Reflected Light/Glare: There would be little reflected light or glare associated with the project, because no mirrored glass would be used. A mitigation measure to reduce reflected light and glare would be included in the project (see p. 20).

Air Quality During Construction: Construction of the proposed building would have short-term effects on air quality in the project vicinity. Mitigation measures to reduce particulate and hydrocarbon emissions generated during construction to insignificant levels would be included in the project (see p. 21).

Utilities/Public Services: The increased demand for public services and utilities attributable to the project would not require additional personnel or equipment.

Biology: The proposed project would not have a significant effect on plants or animals. The site is covered by buildings.

Geology/Topography: A preliminary geotechnical report has been prepared by a California-licensed engineer and a final geotechnical report would be prepared before commencement of construction. The project sponsor and contractor would follow recommendations made in the final report regarding excavation and construction on the site (see p. 21).

Water: The proposed building would use about 55,000 gallons of water per day. Drainage patterns would not be altered. Measures to mitigate potential impacts associated with excavation and dewatering would be included in the project (see p. 21).

Hazards: The project would neither cause health hazards nor would it be affected by hazardous uses. A mitigation measure to reduce any possible conflicts with the City's Emergency Response Plan would be included in the project (see p. 22).

Cultural Resources: No significant subsurface resources are expected to be encountered during construction. A mitigation measure to protect archaeological resources, should any be discovered on the site, would be included in the project (see p. 22).

III. ENVIRONMENTAL EVALUATION CHECKLIST

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS. Could the project:	YES	NO	DISCUSSED
1. Require a variance, special authorization, or change to the City Planning Code or Zoning Map?	___	X	X
*2. Conflict with the Comprehensive Plan of the City and County of San Francisco?	X	___	X

* Derived from State EIR Guidelines, Appendix C, normally significant effect.

	YES	NO	DISCUSSED
*3. Conflict with any other adopted environmental plans and goals of the City or Region?	___	X	X

The project would require discretionary review by the Planning Commission. The relationship of the project to policies of the Comprehensive Plan, provisions of the City Planning Code, and the proposed Downtown Plan will be discussed in the EIR. The project would not conflict with other adopted plans and goals; however, issues related to compatability with zoning and plans will be discussed in the EIR.

B. ENVIRONMENTAL EFFECTS	YES	NO	DISCUSSED
1. Land Use. Could the project:			
*a. Disrupt or divide the physical arrangement of an established community?	___	X	___
b. Have any substantial impact upon the existing character of the vicinity?	X	___	X

Surrounding land use is a mixture of light industry, support services and offices in older, one- to five-story buildings. The site is directly adjacent to the Transbay Terminal and Terminal Plaza. The relationship of the proposed project to surrounding land uses will be discussed in the EIR.

2. Visual Quality. Could the project:	YES	NO	DISCUSSED
*a. Have a substantial, demonstrable negative aesthetic effect?	___	X	X
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?	___	X	X
c. Generate obtrusive light or glare substantially impacting other properties?	___	X	X

The surrounding buildings in the project area are one to five stories. The EIR will discuss distant and near views of the project, its visual aspects, and its relationship to the appearance and scale of surrounding buildings.

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* Derived from State EIR Guidelines, Appendix C, normally significant effect.

The relationship of the project to the policies and objectives of the Urban Design Element of the Comprehensive Plan will also be discussed in the EIR. The windows of the proposed building would be of clear glass at street level and non-mirrored, tinted glass at upper levels. The building would, in general, be constructed of textured materials, and would not be a cause of glare.

3. Population. Could the project:	YES	NO	DISCUSSED
*a. Induce substantial growth or concentration of population?	X		X
*b. Displace a large number of people (involving either housing or employment)?		X	X
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	X		X

The proposed building would displace 23 on-site businesses. It would increase the daytime population at the site by about 1100 people. The proposed building would be expected to create a demand for housing in San Francisco. These issues will be discussed in the EIR. There are no dwelling units on the site, so project construction would not reduce the housing supply.

4. Transportation/Circulation. Could the project:	YES	NO	DISCUSSED
*a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	X		X
b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?		X	X
c. Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	X		X

*Derived from State EIR Guidelines, Appendix C, normally significant effect.

	YES	NO	DISCUSSED
d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	X		

Increased employment at the building site would increase demand on existing transportation systems. The number of pedestrians in the area would also increase. The project would not cause alterations to existing circulation patterns except during construction; its effects on circulation patterns during construction will be discussed in the EIR. Although transportation effects of the proposed project by itself would not be expected to be substantial, the cumulative effects of office development downtown could have a significant effect. Project-related and cumulative transportation, parking and circulation impacts will be analyzed and described in the EIR, using Department of City Planning Transportation Guidelines (September 1983). Relevant policies of the Transportation Element of the Comprehensive Plan will also be discussed.

5. Noise. Could the project:	YES	NO	DISCUSSED
*a. Increase substantially the ambient noise levels for adjoining areas?		X	X
b. Violate Title 25 Noise Insulation Standards, if applicable?		X	X
c. Be substantially impacted by existing noise levels?		X	

Project Construction

Demolition, excavation and building construction would temporarily increase noise in the site vicinity. Project construction noise and its effects on any sensitive receptors will be addressed in the EIR. Trucking of excavated and construction materials would not cause a noticeable increase in noise levels along haul routes because of existing traffic noise levels. Trucking noise effects will not be discussed in the EIR.

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*Derived from State EIR Guidelines, Appendix C, normally significant effect.

Project Operation

The downtown San Francisco noise environment is dominated by vehicular traffic noise. The Environmental Protection Element of the San Francisco Comprehensive Plan, which indicates an existing day-night average noise level (L_{dn})/1/ of 75 dBA/2/ on Mission Street and 70 dBA on First Street as of 1974, contains guidelines for determining the compatibility of land uses with various noise environments. Noise measurements taken along Mission and First Streets during a weekday p.m. peak hour now indicate an Leq of 77 dBA./3,4/ For office uses, the guidelines recommend no special noise control measures in an exterior noise environment up to an Ldn of 70 dBA. For noise levels of 75 dBA and above, the guidelines recommend an analysis of noise reduction requirements and inclusion of noise insulation features in the building design. The project sponsor has indicated that noise insulation measures would be included as part of the design as specified by the guidelines (see p. 21).

Project operation would not result in noise levels greater than those presently existing in the area. The site is within 35 feet of the bus on-ramp for the Transbay Terminal. Traffic generated by the building would increase traffic noise by less than one dBA. A one dBA increase in environmental noise is imperceptible to the untrained human ear.

Mechanical equipment for building operation would be regulated by San Francisco Noise Ordinance, San Francisco Municipal Code, Section 2909, "Fixed Source Noise Levels," which limits noise at the property line to 70 dBA from 7 a.m. to 10 p.m. and 60 dBA from 10 p.m. to 7 a.m. The project sponsor would be required to comply with the ordinance.

Title 25 applies to residential uses and would not be applicable to the project as no residential units are proposed. Discussion of operational noise will not be included in the EIR.

NOTES - Noise

/1/ L_{dn}, the day-night average noise level, is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noises; noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

/2/ dBA is a measure of sound in units of decibels (dB). The "A" denotes the A-weighted scale, which simulates the responses of the human ear to various frequencies of sound.

/3/ Noise measurements were made on Tuesday, November 22, 1983 at both Mission and First Streets.

/4/ Leq, the equivalent steady-state sound level, is the sound level which, in a stated period of time (in this case, 15 minutes), would contain the same acoustic energy as the time-varying sound level during the same time period.

6. Air Quality/Climate. Could the project:	YES	NO	DISCUSSED
*a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	X		X
*b. Expose sensitive receptors to substantial pollutant concentrations?		X	
c. Permeate its vicinity with objectionable odors?		X	
d. Alter wind, moisture or temperature (including sun shading effects), so as to substantially affect public areas, or change the climate either in the community or the region?	X		X

San Francisco's persistent summer winds and its upwind position with respect to major pollutant sources continue to give it possibly the cleanest air in the Bay Area. Despite these advantages, there are periods, usually in fall and winter, when the air becomes stagnant. At these times the entire Bay Area has poor air quality. In 1981 and 1982 the maximum carbon monoxide (CO) concentrations recorded at the permanent Bay Area Air Quality Management District monitoring station at 900 23rd Street (about two miles south of the site) exceeded the federal CO standard of nine parts per million(ppm); other measured pollutants were all below standards /1,2/. The state air quality standard for total suspended particulates (TSP) was exceeded in San Francisco for one day (one violation) in 1981 and three days (three violations) in 1982. Since elevated concentrations of TSP tend to be a local phenomenon, the concentrations measured at the monitoring station at 900 23rd Street would not necessarily be representative of TSP concentrations in the project vicinity.

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*Derived from State EIR Guidelines, Appendix C, normally significant effect.

Two types of air quality effects could be expected from the proposed building: short-term effects from construction activity, and long-term impacts related to traffic generated by occupants of the structure. Climatic conditions in downtown San Francisco allow rapid dispersal of air pollutants, so local stationary sources of emissions rarely create a measurable impact at monitoring stations. Rather, their impact is to add to regional accumulations of pollutants. Thus, the project would probably not result in direct violation of any ambient air quality standard, although it would contribute cumulatively to such excesses. Traffic generated by the proposed building would produce pollutant emissions. Air quality impacts from project-generated as well as cumulative development traffic in the project area will be discussed in the EIR.

Project Construction

Demolition, grading and other construction activities would temporarily affect local air quality for about 18 months, causing a temporary increase in particulate dust and monocarbon emissions. Dust emissions during demolition and excavation would increase particulate concentrations near the site. Dustfall can be expected at times on surfaces within 200 to 800 ft. Under high winds exceeding 12 miles per hour, localized effects including human discomfort might occur downwind from blowing dust. Construction dust is composed primarily of large particles that settle out of the atmosphere more rapidly with increasing distance from the source. More of a nuisance than a hazard for most people, this dust could affect persons with respiratory diseases as well as sensitive electronics or communication equipment. The project sponsor would require the contractor to wet down the construction site twice a day during construction to reduce particulates by at least 50%.

Diesel-powered equipment would emit, in decreasing order by weight, nitrogen oxides, carbon monoxide, sulfur oxides, hydrocarbons, and particulates. This would increase local concentrations temporarily but would not be expected to increase the frequency of exceedances of air quality standards. The project sponsor would require the project contractor to maintain and operate construction equipment in such a way as to minimize exhaust emissions (see p. 21). Although ambient concentration of these pollutants would be increased for the duration of the construction period, no increased concentrations are expected to occur.

The project sponsor has agreed to mitigation measures to reduce particulate emissions generated during construction activities (see p. 21). Construction air quality effects will not be discussed in the EIR.

Wind and Shadow

Buildings on the project site are one- to five-stories. The Transbay Terminal and Plaza are directly northeast of the site across First Street. The proposed building would increase shadows on Terminal Plaza (a portion of which is planned as public open space), sidewalks and structures near the project. These effects will be discussed in the EIR; the analysis will include sun path and shadow diagrams.

A wind tunnel analysis has been recommended by a certified consulting meteorologist/3/ and will be prepared for the EIR. The findings of the analysis will be discussed in the EIR.

NOTES - Air Quality/Climate

/1/ Bay Area Air Quality Management District, Air Currents, Vol. 25, NO.3, San Francisco, California, March 1982.

/2/ Bay Area Air Quality Management District, Air Currents, Vol. 24, No. 3, San Francisco, California, March 1981.

/3/ Donald Ballanti, Certified Consulting Metereologist, letter, October 6, 1983. Letter is available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor.

7. Utilities/Public Services. Could the project:	YES	NO	DISCUSSED
*a. Breach published national, state or local standards relating to solid waste or litter control?		X	X
*b. Extend a sewer trunk line with capacity to serve new development?		X	X

*Derived from State EIR Guidelines, Appendix C, normally significant effect.

	YES	NO	DISCUSSED
c. Substantially increase demand for schools, recreation or other public facilities?	___	X	X
d. Require major expansion of power, water, or communications facilities?	___	X	X

Providers of utilities and public services have been contacted and have indicated that existing capacities are adequate to serve the project. Possible effects on fire services due to cumulative development will be discussed in the EIR. Statements from these service providers are available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, Fifth Floor. No further analysis is necessary in the EIR.

8. Biology. Could the project:	YES	NO	DISCUSSED
*a. Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	___	X	___
*b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	___	X	X
c. Require removal of substantial numbers of mature, scenic trees?	___	X	___

The site is completely covered with impervious surfaces. The project would not affect any plant or animal habitat. This topic will not be discussed in the EIR.

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*Derived from State EIR Guidelines, Appendix C, normally significant effect.

9. Geology/Topography. Could the project:	YES	NO	DISCUSSED
*a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	___	X	X
b. Change substantially the topography or any unique geologic or physical feature of the site?	___	X	X

Available geologic maps of the area indicate that the site is located immediately inland of the original shoreline along First Street near the Yerba Buena Cove area of San Francisco and is underlain by artificial fill consisting of dune sand with some silt, clay and brick and rubble waste that was placed over soft and compressible Bay deposits./1/ The site is in an area of potential liquefaction and subsidence hazard. Groundshaking is expected to be "strong" to "very strong" on the site for a major earthquake of the 1906 type. Maximum flood elevations for earthquake-induced tsunamis have been estimated by the Department of Housing and Urban Development for the Federal Insurance Administration to be about elevation -3.5 feet for a 100-year event and 0.5 foot for a 500-year event (elevations from San Francsico Datum, 8.64 ft above MSL), both of which would be below site grade. There is an inactive fault (Portrero Fault) nearby.

Excavation would be required to an anticipated depth of about 30 feet for the proposed subsurface mechanical and parking levels. In order to obtain a building permit from the Bureau of Building Inspection, the project sponsor would have a site-specific soils report prepared by a California-licensed soils engineer, and has agreed to construct the building in accordance with the recommendations of the soils report with regard to foundation and structure (see p.21). The building would comply with all applicable seismic and life safety standards. These issues require no further analysis and will not be discussed in the EIR.

NOTE - Geology/Topography

/1/ Dames & Moore, Geotechnical Consultants, Preliminary Geotechnical Report on 100 First Tower, September 9, 1983 This report is available for public review at the Office of Environmental Review, 450 Mc Allister Street., Fifth Floor, San Francisco, CA 94102.

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* Derived from State EIR Guidelines, Appendix C, normally significant effect.

10. Water. Could the project:	YES	NO	DISCUSSED
*a. Substantially degrade water quality, or contaminate a public water supply?	___	X	X
*b. Substantially degrade or deplete groundwater resources, or interfere substantially with ground water recharge?	___	X	X
*c. Cause substantial flooding, erosion or siltation?	___	X	___

Site runoff would drain into the City's combined sanitary and storm sewage system. The project would not affect drainage patterns or water quality because the site is now entirely covered with impermeable surfaces. The proposed building would increase domestic water use on the site from approximately 11,000 gallon per day (gpd) to a projected 55,000 gpd.

A preliminary geotechnical report has been prepared by a California-licensed engineer and includes information on groundwater levels and flows /1/. According to the report, the water table is about 12 ft. below street level, but may vary depending on subdrainage at nearby sites, rainfall infiltration, and other effects such as storm drain leakage and construction activities at surrounding sites. Since excavation would extend about 30 ft. below street level (18 ft. below groundwater level), dewatering of the site would be necessary. Drawdown of the groundwater level outside the excavation area could produce some local subsidence which could damage the streets or older buildings in the immediate vicinity of the site. Dewatering would, therefore, be confined within an essentially watertight bulkhead; if this were not achievable, recharge wells would be used around the periphery of the site. Dewatering of the deeper bearing sands would be necessary. The hydrostatic level would be lowered only sufficiently and long enough for completion of the basement. The groundwater level outside the excavation would be monitored during dewatering, using groundwater observation wells. Water levels in the fill soils would be monitored closely before, during, and after dewatering, both inside and outside the excavation, to assess the adequacy of coinstruction dewatering, effectiveness of groundwater stabilization outside the excavation, and groundwater recovery subsequent to dewatering (see p. 21). These issues will not be discussed in the EIR.

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* Derived from State EIR Guidelines, Appendix C, normally significant effect.

NOTE - Water

/1/ Dames & Moore, Geotechnical Consultants, Geotechnical Report on 100 First Tower, September 9, 1983.

11. Energy/Natural Resources. Could the project:	YES	NO	DISCUSSED
*a. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	___	X	X
b. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	___	X	X

The building would be designed and constructed to conform with the energy requirements of Title 24 of the California Administrative Code. In comparison with existing buildings, the greater size of the proposed building would increase the total amount of energy consumed at the site. The proposed building would contribute to cumulative energy consumption resulting in depletion of nonrenewable resources. Project-generated and cumulative energy consumption impacts and project conservation measures will be discussed in the EIR.

12. Hazards. Could the project:	YES	NO	DISCUSSED
*a. Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	___	X	___
*b. Interfere with emergency response plans or emergency evacuation plans?	___	X	X
c. Create a potentially substantial fire hazard?	___	X	X

The project would increase the daytime population in downtown San Francisco. Employees in the proposed building would contribute to congestion if an emergency evacuation of the Downtown area were required. An evacuation and emrgency response plan would be developed as part of the proposed project (see p. 22). The project's emergency plan would be coordinated with the City's emergency planning activities. Because of the mitigation measure proposed as part of the project, this issue will not be discussed in the EIR.

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*Derived from State EIR Guidelines, Appendix C, normally significant effect.

The increased number of persons using the site would not substantially increase the fire hazard at the site as the project would conform to the Life Safety provisions of the San Francisco Building Code, and Title 24 of the state Building Code. Therefore, it is not anticipated that the project would create a substantial fire hazard and this issue will not be discussed in the EIR.

13. Cultural. Could the project:	YES	NO	DISCUSSED
*a. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	___	X	X
*b. Conflict with established recreational, educational, religious or scientific uses of the area?	___	X	___
c. Conflict with preservation of any buildings of City landmark quality?	___	X	X

Six structures presently occupy the building site. All would be demolished for project construction. The excavation required for the construction of foundations would occur in existing disturbed soils and the potential for encountering archaeological resources during construction would thus be limited./1/ The site is located inland of the original shoreline of San Francisco (1853),/1,2/ making the discovery of remains of watercraft unlikely. No gold rush vessels are known to have been beached, scuttled or broken up on the project site./3/ While a major archaeological discovery is unlikely, should any artifacts be discovered during site excavation, the project sponsor is committed to the mitigation measure on p. 22 regarding archaeological resources. Archaeological resources will not be discussed in the EIR.

The project would require demolition of four buildings rated "C" by the Foundation for San Francisco's Architectural Heritage's Splendid Survivors survey of historical or architecturally significant buildings. The project's effect on architectural resources will be discussed in the EIR.

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*Derived from State EIR Guidelines, Appendix C, normally significant effect.

NOTE - Cultural

/1/ San Francisco: Report On Historical Cultural Resources. Olmstead, Roger and Nancy; Pastron, Allen, 1977.

/2/ Behind the Seawall: Historical Archaeology Along the San Francisco Waterfront. Archeo-Tec for San Francisco Clean Water Program, 1981.

/3/ Notes on the Gold Rush Ships. San Francisco Maritime Museum, 1963.

C. OTHER. Could the project:	YES	NO	DISCUSSED
Require approval of permits from City Departments other than DCP or BBI, or from Regional, State or Federal Agencies?	X		X

The subsurface levels proposed for the project would extend beneath the Mission Street sidewalk. A revocable sidewalk encroachment permit, to allow the use of subsurface space beneath public sidewalks, must be applied for from the Department of Public Works along with the building permit. The proposed subsurface development and revocable encroachment permit approval will be discussed in the EIR.

D. MITIGATION MEASURES.	YES	NO	N/A	DISCUSSED
1. If any significant effects have been identified, are there ways to mitigate them?	X			X
2. Are all mitigation measures identified below included in the project?	X			X

The following are mitigation measures related to topics determined to require no further analysis in the EIR. The EIR will contain a mitigation chapter describing these measures and other measures which would be, or could be, adopted to reduce potential adverse effects of the project as identified in the EIR.

Visual Quality

- In order to reduce obtrusive light or glare, the project sponsor would not use any mirrored glass on the building.

Noise

- As recommended by the Environmental Protection Element of the San Francisco Comprehensive Plan, an analysis of noise reduction requirements would be prepared by the project sponsor and recommended noise insulation features would be included as part of the proposed building.

Air Quality

- During construction, the project sponsor would require the general contractor to wet down demolition and construction areas at least twice a day to reduce dust generation by approximately 50%.

- The project sponsor would require the project general contractor to maintain and operate construction equipment in such a way as to minimize exhaust emissions.

Geology/Topography

- A preliminary geotechnical report has been prepared by a California-licensed engineer for the project sponsor. A final report would be prepared before commencement of construction. The project sponsor and contractor would follow recommendations made in that report regarding excavation and construction of the proposed building.

Water

- The final soils report to be prepared by the California-licensed engineer for this project will address the potential settlement and subsidence impacts of dewatering of the site. Based upon this discussion the soils report shall contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works will require that a Special Inspector (as defined in Article 3 of the Building Code) will be retained by the project sponsor to perform this monitoring. If, in the

judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt this settlement. Costs for the survey and any necessary repairs to service under the streets would be borne by the contractor. Groundwater pumped from the site during dewatering would be retained in a holding tank to allow suspended particles to settle (if this were found necessary by the Industrial Waste Division of the Department of Public Works) to prevent sediment from entering the storm drain/sewer lines.

Hazards

- An evacuation and emergency response plan would be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to insure coordination between the City's emergency planning activities and the plan developed for the proposed building. The emergency plan for the proposed building would be reviewed by the Office of Emergency Services and implemented by building management insofar as possible before issuance by the Department of Public Works of final building occupancy permits.

Cultural

- Should evidence of historic or prehistoric artifacts be uncovered at the site during construction, the sponsor would agree: 1) to require the project contractor to notify the Environmental Review Officer and the President of the Landmarks Preservation Advisory Board; 2) to require that the contractor suspend construction in the area of the discovery for a maximum of four weeks to permit review of the find and, if appropriate, retrieval of artifacts; 3) for an archaeologist or historian or other expert acceptable to the Environmental Review Officer to help the Office of Environmental Review determine the significance of the find and identify feasible measures, if any, to preserve or recover artifacts; and 4) to implement archaeological mitigation measures which would be consistent with Assembly Bill 952.

E. MANDATORY FINDINGS OF SIGNIFICANCE

	YES	NO	DISCUSSED
*1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?		X	
*2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?		X	
*3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	X		X
*4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?		X	
*5. Is there a serious public controversy concerning the possible environmental effect of the project?		X	

The project could contribute to cumulative effects on transportation in the Downtown area. This issue will be analyzed in the EIR.

F. ON THE BASIS OF THIS INITIAL STUDY:

_____ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

_____ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers _____, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

__X__ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Alec S. Bash (SW3)

Alec S. Bash
Environmental Review Officer

for

Dean L. Macris
Director of Planning

Date: 1/4/84

* Derived from State EIR Guidelines, Appendix C, normally significant effect.

APPENDIX B: ARCHITECTURAL RESOURCES

ARCHITECTURAL EVALUATION SURVEYS

The architectural ratings discussed in the text of this report (see III.B., pp. 44 - 45, represent the results of two separate architectural surveys.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING INVENTORY

Between 1974 and 1976, the San Francisco Department of City Planning conducted a citywide inventory of architecturally significant buildings. An advisory review committee of architects and architectural historians assisted in the final determination of ratings for the 10,000 buildings, the results of which were entered in an unpublished 60-volume record of the inventory. The rated buildings are also represented on a set of color-coded maps which identify the location and relative significance of each building surveyed. The inventory and maps are on file at the Department of City Planning.

The inventory assessed the architectural significance of the surveyed structures from the standpoint of overall design and particular design features. Both contemporary and older buildings were included, but historical associations were not considered. Each building was given two numerical ratings, for architectural quality and for overall architectural significance, urban design context, and environmental significance. The latter rating is referred to in this report. The ratings ranged from a low of "0" to a high of "5". The architectural survey resulted in a listing of the best 10% of San Francisco's buildings. In the estimation of the inventory participants, buildings rated "3" or higher represent approximately the best 2% of the City's architecture. A full description of the survey rating system is available at the Department of City Planning, 450 McAllister St.

HERITAGE SURVEY

The Foundation for San Francisco's Architectural Heritage, through its consultants, Charles Hall Page & Associates, Inc., conducted an architectural and historical survey of all downtown structures. In 1979, the original inventory results were published in the book Splendid Survivors (Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Books, San Francisco, 1979). A subsequent 1982 Heritage survey evaluated all structures in the C-3 zoning districts in areas not covered in the Splendid Survivors survey ("San Francisco Downtown Architectural Survey: C-3 Zoning District, Final Evaluated List", December 1, 1982). The expanded inventory has not been formally published by Heritage. Criteria considered in rating the buildings for both surveys include Architectural Significance, Historic Context and Negative Alterations. Summary ratings from "A" to "D" were assigned to each building on the basis of these scores. The summary ratings, as described on pp. 12-13 of Splendid Survivors, are listed below:

A. "Highest Importance. Individually the most important buildings in downtown San Francisco, distinguished by outstanding qualities of architecture, historical values, and relationship to the environment. All A-group buildings are eligible for the National Register, and of highest priority for City Landmark status."

B. "Major Importance. Buildings which are of individual importance by virtue of architectural, historical, and environmental criteria. These buildings tend to stand out for their overall quality rather than for any particular outstanding

characteristics. B-group buildings are eligible for the National Register, and of secondary priority for City Landmark status."

The Landmarks Preservation Advisory Board does not distinguish between "A" rated and "B" rated buildings for purposes of preservation.

C. "Contextual Importance. Buildings which are distinguished by their scale, materials, compositional treatment, cornice and other features. They provide the setting for more important buildings and they add visual richness and character to the downtown area. Many C-group buildings may be eligible for the National Register as part of historic districts."

D. "Minor or No Importance. Buildings which are insignificant examples of architecture by virtue of original design, or more frequently, insensitive remodeling. This category includes vacant buildings and parking lots. Most D-group buildings are sites of opportunity."

Not Rated. Buildings which have been built or suffered insensitive exterior remodelings since 1945.

ARCHITECTURALLY AND/OR HISTORICALLY SIGNIFICANT BUILDINGS IN THE DOWNTOWN

The City Planning Commission adopted by Resolution No. 8600 (May 29, 1980), a "List of Architecturally and/or Historically Significant Buildings in The Downtown," based on the above described surveys. Generally, buildings rated "3" or higher in the DCP survey or "A" or "B" in the original Heritage survey (Splendid Survivors) were placed on the list. The expanded Heritage survey (1982) has not been adopted by the City Planning Commission to date.

The purpose of the list is to advise developers and building owners of the importance the City places upon the buildings' conservation and to require special review by the Commission of any plans which would affect any building or buildings on the list. Resolution No. 9240 (November 19, 1981) reaffirms the Commission's concern for preservation of architecturally significant buildings and acknowledges the Director's intent to recommend denial of projects that propose to demolish significant buildings. As noted in Section III.B., no buildings on the project site are included on this list.

APPENDIX C: EMPLOYMENT AND HOUSING FACTORS

TABLE C-3: MAJOR OFFICE BUILDING CONSTRUCTION IN SAN FRANCISCO THROUGH 1983, IN GROSS SQUARE FEET

Year	Total Gross Sq. Ft. Completed	5-Year Total (Net)/a/	5-Year Annual Average (Net)/a/	Cumulative Total of All Office Buildings	Cumulative Total of All Downtown Office Buildings
Pre-1960				28,145,000 /b/	24,175,000 /c/
1960	1,183,000				
1961	270,000				
1962	--				
1963	--				
1964	1,413,000				
1960-1964		1,866,000 (2,580,000)	573,200 (516,000)	30,725,000	26,754,000
1965	1,463,000				
1966	973,000				
1967	1,453,000				
1968	1,234,000				
1969	3,256,000				
1965-1969		8,379,000 (7,541,000)	1,675,800 (1,508,000)	38,266,000	34,295,000
1970	1,853,000				
1971	--				
1972	1,961,000				
1973	2,736,000				
1974	2,065,000				
1970-1974		8,615,000 (7,753,000)	1,723,000 (1,550,000)	46,019,000	42,048,000
1975	536,000				
1976	2,429,000				
1977	2,660,000				
1978	--				
1979	2,532,000				
1975-1979		8,157,000 (7,341,000)	1,631,400 (1,468,000)	53,360,000	49,389,000

(Continued)

TABLE C-3: MAJOR OFFICE BUILDING CONSTRUCTION IN SAN FRANCISCO THROUGH 1983, IN GROSS SQUARE FEET (Continued)

Year	Total Gross Sq. Ft. Completed	5-Year Total (Net)/a/	5-Year Annual Average (Net)/a/	Cumulative Total of All Office Buildings	Cumulative Total of All Downtown Office Buildings
1980	1,284,000				
1981	3,029,000				
1982	3,771,000				
1983	4,108,000				
		12,192,000/d/	3,048,000/d/		
1980-1983		(10,972,800)/d/	(2,743,200)/d/	65,552,000	60,144,000

/a/ Net equals 90% of gross. Net new space is added at an increase factor of 90%, since it is assumed that space equal to 10% of a new building is demolished to make land available for the new replacement building.
/b/ Source: San Francisco Downtown Zoning Study, Working Paper No. 1, January 1966, Appendix Table 1, Part 1. For pre-1965, data include the area bounded by Vallejo, Franklin, Central Skyway, Bryant and Embarcadero. Also includes one-third of retail-office mixed use. For post-1964, data include the entire city.
/c/ Gross Floor Space for downtown offices are included for the following functional areas: Financial, Retail, Hotel, Jackson Square, Golden Gateway, Civic Center, South of Market, and Outer Market Street as defined in the cited January 1966 report. For post-1964, the entire area east of Franklin St. is included.
/d/ Four-year total and average.

SOURCE: Department of City Planning, March 15, 1983, and July 16, 1984.

CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO

Process Used to Develop the Cumulative List of Office Projects In Downtown San Francisco:

The attached list of office and retail projects was prepared as a background document for a land use-based method of analyzing cumulative impacts. A land use-based cumulative analysis is one of the two methods of cumulative analyses suggested by the State CEQA Guidelines (Section 15130(b)(1)(A)), whereby a list of related projects is used to determine the combined effects of the whole and to determine the contribution of a proposed office or retail project to the overall cumulative effect. This is only one method of determining cumulative impacts. The other method of determining cumulative impacts is an analysis based on estimates of total employment projected for the area. This latter method is permitted by State Guidelines Section 15130(b)(1)(B) if the employment projections are based on an appropriate planning document.

The attached cumulative list is an expanded version of past lists and includes all office and large retail projects proposed, approved, under construction and recently completed in the greater downtown area which have active applications in the Department of City Planning. This list is appropriate for use only in a land-use based analyses of the cumulative impacts of office/retail projects in the greater downtown.

Relevant Redevelopment Agency projects have been included in the list. The Rincon Point/South Beach Redevelopment Area includes four projects: 77,000 sq. ft. of office space at 181 Steuart Street, 200,000 sq. ft. of office space on First Street, and a 30,000-sq.-ft. office building, all in at least preliminary negotiation stages betweeen the Agency and potential developers; and 453,000 sq. ft. of office space proposed by the U.S. Postal Service at the Rincon Annex site (Source: San Francisco Redevelopment Agency). The listing for the Yerba Buena Gardens in the YBC Redevelopment Area includes 1.2 million sq. ft. of office space in the Olympia and York proposal (Source: San Francisco Redevelopment Agency). Other office buildings in the YBC and applicable parts of the Western Addition Redevelopment Areas are listed under individual building names or addresses, based on information obtained from regular contact with redevelopment agency staff. Other jurisdictions are also contacted when the cumulative list is updated: the new 293,000-sq.-ft. State Office Building under construction at Van Ness and McAllister is included; no Federal office space is proposed in downtown San Francisco in the near future other than that at the Rincon Annex Post Office site in the Rincon Point Redevelopment Area, (Source: John Scales, General Services Administration, telephone conversation, April 11, 1984).

Hotel projects have not been included in the list because hotel uses have different peaking characteristics from office buildings and generally do not significantly affect peak-hour traffic or transit and therefore also do not contribute to effects such as maximum production of air pollutants (see 135 Main Final Supplemental EIR, EE81.61, certified November 30, 1982, p. 150). Residential projects have not been included because residential uses are extremely limited in the study area and generally are unrelated to office uses. Residential travel in the downtown usually takes place in the contra-commute direction during peak hours and thus does not contribute to cumulative traffic or transit congestion. In addition, office trips in the p.m. peak period are assumed to be made by workers traveling to their residences. Trip generation calculated for residential uses includes persons returning to their homes after work in the p.m. peak.

Inclusion in the cumulative analysis of residential uses in downtown San Francisco would double count project-generated travel: once when employees left their office building and again when they arrived at their residence if they lived in the downtown area.

Approximately 1.3 million sq. ft. of office space is proposed for locations outside the greater downtown area. All but two of these projects (San Francisco Executive Park just east of U.S. 101 near the southern border of San Francisco, proposed for about 1.1 million sq. ft., and St. Mary's Medical Office Building on Shrader at Fulton, proposed to be about 90,000 sq. ft.) are under 10,000 sq. ft. These projects are not included on the cumulative list because their impacts do not accumulate measurably with office space in the downtown area. Although the Executive Park proposal would contribute to the auto traffic on U.S. 101, the critical analysis points for p.m. peak-period cumulative downtown traffic on U.S. 101 are the freeway entrances near downtown, the approaches to the Bay Bridge, and the Alemany interchange which restricts southbound U.S. 101 traffic on the p.m. peak period. Executive Park traffic would not contribute measurably to peak demands on freeway entrances near downtown or peak direction at peak period impacts on the Alemany interchange and is factored in as part of the traffic approaching the Bay Bridge before cumulative downtown development is added. (Executive Park Subsequent DEIR, EE81.197E, September 9, 1983. Note that an EIR was prepared in 1976 for a project on this site; following permits for four of the proposed office buildings, the developer made major changes in the project that necessitated a new EIR which is now in progress.)

The Department's Master Project Log contains listings for projects which are no longer active for various reasons, such as no action by project sponsor in over one year, application withdrawn by sponsor, or project proposal revised to non-office or non-retail uses (examples of these projects include 272 Sutter, approximately 65,000 sq. ft., withdrawn by sponsor; 2nd and Harrison, 49,000 sq. ft., application revised from office space to parking lot). Some of these files have not been formally closed due to other higher staff priorities; however, the projects are not included on the cumulative list when staff assigned have concluded that the office project has been abandoned or withdrawn or the scope or nature of the proposal is so uncertain as to be not reasonably foreseeable.

In EIRs prepared during the latter half of 1983, the list used for cumulative analyses included a section labeled 'Completed But Not in Base Case.' As of the end of 1983, that list totaled over 6 million sq. ft. of office space and about 225,000 sq. ft. of retail space (see Table C-2, Projects Completed Before 1984, following page). These projects were included on earlier lists even though they were built and fully or partially occupied because some of the baseline data (measurements of the existing situation) for some transportation systems was collected in about mid-1982 and thus could not include the effects of these projects. The baseline has recently been updated to reflect 1984 for use in the Downtown Plan EIR. Projects completed before 1984 are included in this updated baseline data. Using 1984 as the existing baseline situation means that projects completed by the end of 1983 should be omitted from the list of projects used for cumulative analysis in order to avoid counting effects of the projects twice. Because some of the baseline data previously used was collected more recently than mid-1982, list-based cumulative analyses overestimated some reported impacts by measuring the effects of office buildings as part of the baseline existing situation and by including the same office building in the calculations of future cumulative impacts. For example, PG&E is already serving office buildings completed in 1982 and 1983; including those

buildings in calculations of future cumulative energy demand would count them twice. Therefore, for some part of the cumulative analyses, omitting projects completed by 1983 will provide more realistic predictions of future conditions.

The Department is aware of a proposal for the Southern Pacific property near China Basin, called 'Mission Bay.' The application for environmental review for that project has been withdrawn; no other applications have been filed. The project is too speculative to analyze; intensity, density and types of uses have not yet been determined by the developer. Parts of the developer's original proposal would require major rezoning and amendment of the City's Comprehensive Plan. Further, two San Francisco Supervisors have proposed that the City acquire the property, and one neighborhood has prepared a development plan quite different from that withdrawn by the developer. Without more settled decisions about this property, it is not reasonably foreseeable, to include it in the cumulative list analysis.

The Department of City Planning is in the process of preparing plans and environmental analyses for several areas in or near the downtown. Because these plans involve only proposals for zoning and other land use controls, they are not properly part of any cumulative list. Although analyses for these plans sometimes predict amounts of office space that could be built in the area being studied, the predictions are for purposes of assessing impacts of the plans and in no way reflect proposed future development.

Use of the Department's list for estimating cumulative impacts builds in certain limitations. It assumes, for example, that all proposals will be built at essentially the size proposed and that all buildings once built will be fully occupied. It is important to note that the cumulative list has not been adjusted to reflect temporary limitations on growth impacts by the City's actions to establish a Special Use District in the South of Market and a moratorium on new office and hotel space over 50,000 sq. ft. Nor has any adjustment been made to account for reduced building potential as proposed in the Downtown Plan (basic FAR of 14:1 reduced to 10:1). Thus, the total square footages on the list of projects under formal review may be overestimated, and impacts based on the square footages may also in overestimated, if some buildings are not built, not fully occupied, or reduced in size.

TABLE C-2: PROJECTS COMPLETED BEFORE 1984

Assessor's Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.	Date Occupied
		Completed But Not In Base Case Analysis					
106	81.415ED	1299 Sansome	41,000	41,000	3,500	3,500	1983
141	81.151EV	100 Broadway	13,000	13,000			1983
163	EE81.1	901 Montgomery	63,000	63,000	18,800	18,800	1983
164	81.631D	847 Sansome	23,750	23,750			1983
164	81.251D	936 Montgomery	21,500	11,500			1983
196		736 Montgomery	40,000	40,000			1983
196	CU79.49	Pacific Lumber Co.	92,000	92,000			1983
206	81.165D	401 Washington/Battery	13,200	13,200	1,800	1,800	1983
228	81.610ED	569 Sacramento (C)	19,000	19,000			1983
237	DR80.6	353 Sacramento (Daon)	277,000	251,000	8,300	-2,000	1983
240	DR80.16	550 Kearny (Addition)	71,400	71,400			1983
263	CU79.12	101 California	1,265,000	1,257,000	24,700	-14,300	1983
287	81.550D	Sloane Building (C)	125,300	125,300	30,000	30,000	1983
292	DR79.13	Crocker National Bank	676,000	495,000	86,000	54,000	1983
312	EE79.370	50 Grant	90,000	90,000			1983
313	EE77.257	Nieman Marcus			143,000	128,000	1982
351	DR79.133	10 U.N. Plaza	92,050	92,050			1983
738	SFRA	One Flynn Center	25,000	25,000			1983
762	SFRA	Opera Plaza (M)	50,000	50,000			1983
3518	81.483V	291 10th St.	25,700	25,700		-25,700	1983
3702	EE81.25	1155 Market/8th	138,700	138,700	8,800	8,800	1983
3708	DR80.34	25 Jessie/Ecker Square	111,000	111,000			1983
3709	DR80.36	Five Fremont Center	791,200	722,200	35,000	17,300	1983
3712	DR79.11	Federal Reserve	640,000	640,000			1983
3717	EE78.413	150 Spear	330,000	330,000			1983
3718	DR79.12	Pacific Gateway	540,000	540,000	7,500	7,500	1983
3724	SFRA	Yerba Buena West	335,000	335,000			1983
3732	81.548DE	466 Clementina (C)	15,150	15,150			1983
3735	SFRA	Convention Plaza	339,000	339,000			1983
3735	SFRA	Planter's Hotel (C)	20,000	20,000			1983
3752	EE77-220	Office Bldg. (YBC SB-1)	11,000	11,000			1983
3763	81.287V	490 2nd at Bryant (C)	40,000	40,000			1983
3763	81.381	480 2nd at Stillman (C)	35,000	35,000			1983
3763	32.38EVD	400 2nd & Harrison	71,500	49,500			1983
3776	81.693EV	539 Bryant/Zoe	63,000	63,000			1983
TOTAL			6,504,450	6,188,450	367,400	227,700	

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commercial)

SOURCE: Department of City Planning.

TABLE C-3: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
59	83.177E	1620 Montgomery	82,270	45,390		
110	82.129E	1000 Front	139,000	139,000	3,000	3,000
112	83.447E	1100 Sansome	55,000	48,000		
113	8264603	1171 Sansome	30,000	30,000		
113	82.418E	220 Green	3,520	3,520		
130	83.612C	1558 Powell	2,500	2,500		
136	83.476V	962 Battery	15,000	15,000		
192	83.412ED	1055 Stockton			81,500	66,500
194	83.128E	732 Washington	17,500	17,500	11,240	11,240
195	82.643E	660 Washington	3,938	3,938		
227	82.463E	505 Montgomery	327,300	300,670	12,100	-4,775
228	83.422E	560 Sacramento	48,000	31,000		
229	83.222EC	Embarcadero West	575,000	382,000	9,000	9,000
236	82.511E	222 Front	40,250	33,400	3,250	-0-
258	82.421E	Pine/Kearny	186,000	186,000	6,750	6,750
266	83.420ED	98 Battery	169,000	106,500		
267	83.421ED	225 Pine	134,000	134,000		
287	83.91ED	237 Kearny/Bush	99,600	87,800	6,100	2,400
288	83.148E	665 Bush (M)	12,400	2,600		-2,700
309	83.333E	212 Stockton	32,220	15,885	21,700	16,200
326	8312187	156 Ellis	3,200	3,200		
327	82.445E	Stockton/O'Farrell	43,300	25,750	57,950	28,000
331	81.448E	Mixed Use Development	50,000	50,000	70,000	49,000
336	83.21ECV	440 Turk	25,000	8,150		
642	83.218V	1699 Van Ness	20,000	20,000		
814	81.540E	101 Hayes	132,000	132,000	6,000	6,000
3526	83.475V	530-550 9th	42,300	42,300		
3702	83.196E	1169 Market, Trinity	820,000	805,000	40,000	40,000
3704	83.404	901 Market Penney's	145,500	126,000	80,000	80,000
3705	83.314E	5th and Market	880,000	778,000	120,000	40,000
3707	SFRA	YBC Office Bldg.	593,000	593,000		
3708	81.297ED	562 Mission	405,000	265,000	10,000	10,000
3708	83.75E	49 Stevenson	169,600	136,900	9,800	-2,900
3721	83.331E	100 First @ Mission	348,920	342,000		
3721	83.40EZD	524 Howard	279,000	279,000	15,000	15,000
3735	83.313E	35 Hawthorne	47,400	47,400	2,900	2,900
3736	83.311E	299 2nd @ Folsom	206,000	171,000	10,000	10,000
3744	84.41E	Hills Bros.	635,000	535,000	40,000	40,000

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TABLE C-3: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
3749	83.464EV	50 Guy Place	17,500	17,500		
3752	83.310E	837 Folsom	200,000	200,000		
3769	83.213EV	59 Harrison	113,500	49,750		
3776	83.451E	501 Bryant	67,000	35,000	14,000	4,000
3778	83.547E	775 Bryant	27,890	27,890	3,675	3,675
3786	82.33E	655 5th/Townsend	126,250	126,250		
3786	83.272EV	525 Brannan	13,500	13,500		
3788	82.352EV	640 2nd	39,100	37,400		
3789	82.31EV	615 2nd/Brannan (C)	90,000	70,000	9,300	9,300
3794	83.545V	139 Townsend	51,200	50,000		
3923	81.491EVF	1550 Bryant	80,600	49,600		
-	SFRA	Yerba Buena Gardens	1,340,000	1,340,000		
-	SFRA	Rincon Point/S. Beach	760,000	760,000		
TOTAL UNDER FORMAL REVIEW			9,744,260	8,721,295	643,265	442,590
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
65	82.168V	990 Columbus	12,000	12,000		
112	81.258	Ice House (C)	209,000	209,000		
164	81.583D	50 Osgood Place	22,500	22,500	9,100	9,100
176	83.229E	801 Montgomery	31,800	31,800	6,200	6,200
176	82.368E	900 Kearny	25,000	25,000	5,000	5,000
225	81.403ED	814 Stockton	3,500	3,500	3,300	3,300
265	81.195ED	388 Market at Pine (M)	234,500	85,500	10,000	-8,500
268	81.422D	250 Montgomery at Pine	105,700	65,700	8,000	8,000
271	83.13E	582 Bush	18,100	18,100	800	800
288	81.687ED	222 Kearny/Sutter	150,000	49,950	10,000	-8,400
294	82.87D	44 Campton Place	7,600	7,600		
642	82.224VEC	1750 California	82,525	82,525		
669	81.667ED	1361 Bush	13,000	13,000		
671	82.24V	1581 Bush (C)	16,000	16,000		
690	SFRA	Post/Van Ness	88,000	88,000		
716	81.581ED	Polk/O'Farrell (M)	61,600	61,600	22,400	22,400
818	83.94EV	583-591 Hayes (C)	4,900	4,900		
3504	82.137V	44 Gough (C)	30,000	30,000		

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TABLE C-3: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
3702	81.549ED	1145 Market	137,500	108,500	8,000	8,000
3705	80.315	Apparel Mart III	332,400	332,400		
3707	81.492ED	90 New Montgomery	124,300	124,300	3,350	3,350
3707	81.245DA	New Montgomery Pl.	227,500	209,700	2,200	-3,900
3708	81.493ED	71 Stevenson	324,600	324,600	6,200	6,200
3709	81.113ED	Central Plaza	353,100	136,300	17,400	17,400
3717	81.183E	123 Mission	342,800	342,800		
3724	81.102E	Holland Ct. (C)	27,850	27,850		
3729	82.86D	774 Tehama	5,800	5,800		
3733	EE81.2	868 Folsom	65,000	65,000		
3733	82.29E	832 Folsom	50,000	50,000		
3735	SFRA	75 Hawthorne (C)	61,900	61,900		
3738	DR80.5	315 Howard	294,000	294,000	3,200	3,200
3749	EE81.18	Marathon - 2nd & Folsom	686,700	686,700	35,300	35,300
3750	82.241E	600 Harrison	228,000	228,000	10,000	10,000
3750	82.77V	642 Harrison (C)	54,400	45,900		
3764	82.591E	Second St. Sq. (C)*	333,000	263,000	25,000	25,000
3775	81.147V	338-340 Brannan (C)	36,000	36,000		
3776	EE81.59	Welsh Commons (M)	55,600	55,600	12,000	12,000
3788	81.296Z	690 2nd/Townsend (C)	16,600	16,600	16,000	16,000
3789	81.552EV	625 2nd/Townsend (C)	157,000	157,000		
3794	81.569EV	123 Townsend	104,000	49,500		
3794		155 Towsend	19,000	19,000		
3803	81.244D	China Basin Expansion	196,000	196,000		
9900	81.63E	Ferry Building Rehab.	309,500	97,500	163,500	124,000
TOTAL APPROVED 294,450				5,658,275	4,760,625	376,950
		Major Downtown Office Projects Under Construction				
58	82.234E	Roundhouse (C)	45,000	45,000	3,000	3,000
136	81.243E	955 Front/55 Green	50,000	50,000		
143	81.353ED	1000 Montgomery (C)	39,000	39,000		
146	83.99EC	644 Broadway	42,800	42,800		
161	DR80.191	Mirawa Center	36,000	36,000	30,650	30,650
166	DR80.15	750 Battery	105,400	105,400	12,800	12,800
166	CU81.7	222 Pacific at Front (C)	142,000	142,000		

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TABLE C-3: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects Under Construction				
167	SFRA	Golden Gateway III	103,000	103,000		
176	81.673EACV	Columbus/Pacific (Savoy)	49,000	49,000	22,000	22,000
208	81.104EDC	Washington/Montg. (M)	235,000	233,300	4,000	-1,200
227	EE80.296	Bank of Canton	230,500	177,500		-800
239	DR80.1	456 Montgomery	160,550	160,550	24,250	24,250
240	81.705ED	580 California/Kearny	329,500	260,000	6,500	6,500
261	81.249ECQ	345 California (M)	640,000	466,500	15,500	15,500
262	81.206D	130 Battery	41,000	41,000		
270	81.175ED	466 Bush	86,700	86,700	7,800	2,200
271	81.517	453 Grant	27,500	27,500	6,200	6,200
288	81.461EC	333 Bush (Campeau) (M)	498,400	458,100	20,900	20,900
288	DR80.24	101 Montgomery	264,000	234,000	4,900	-14,100
289	81.308D	One Sansome	603,000	603,000	7,000	7,000
311	82.120D	S.F. Federal	246,800	218,850	1,600	-9,440
351	DR79.24	Mardikian/1170 Market	40,000	40,000		
641	82.200CV	1735 Franklin (C)	8,600	8,600		
672	SFRA	Wealth Investments	104,500	104,500		
743	SFRA	Van Ness/Turk (Vanguard)	85,000	85,000		
767	STATE	State Office Building	293,300	293,300		
816	82.212ED	300-350 Gough (M/C)	16,000	16,000		
834	82.603E	25 Van Ness (C)	101,800	42,800	36,400	36,400
3512	82.14	Van Ness Plaza	170,000	170,000	6,000	6,000
3715	82.16EC	121 Steuart	33,200	33,200		
3715		141 Steuart	80,000	80,000		
3717	EE79.236	101 Mission	219,350	219,350		
3717	EE80.349	Spear/Main (160 Spear)	279,000	279,000	7,600	7,600
3717	82.82D	135 Main	260,000	260,000	4,000	4,000
3722	81.417ED	144 Second at Minna	30,000	30,000		
3741	82.203C	201 Spear	229,000	229,000	5,200	5,200
3787	81.306	252 Townsend at Lusk	61,000	61,000		
TOTAL UNDER CONSTRUCTION			5,985,900	5,530,950	226,300	184,660
GRAND TOTAL (ALL PROJECTS)			21,388,430	19,012,870	1,246,515	921,700

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commercial)

SOURCE: Department of City Planning

APPENDIX D: TRANSPORTATION

TABLE D-1: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

Level of Service	Description	Passengers per Seat
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with less than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00-0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence as the restricted freedom of movement for passengers requires longer loading times.	1.01-1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur which can rapidly cause operations to deteriorate.	1.26-1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability is extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51-1.60

SOURCE: Environmental Science Associates, Inc. from information in the Interim Materials on Highway Capacity, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.

K INGLESIDE - VAN NESS STATION

Wednesday, September 9, 1981 - 8:00 A.M. - Inbound

N JUDAH - VAN NESS STATION

Wednesday, September 16, 1981 - 5:00 P.M. Outbound

38 GEARY - VAN NESS AVE. AND O'FARRELL ST.

Wednesday, October 21, 1981 - 9:00 A.M. - Inbound

38 GEARY - VAN NESS AVE. AND GEARY BLVD.

Wednesday, October 21, 1981 - 4:20 P.M. - Outbound

FIGURE D-1

PHOTOS OF PEAK MUNI LOADING CONDITIONS

SOURCE

ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday, September 9, 1981 - 8:20 A.M. - Inbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE.
Tuesday, September 29, 1981 - 5:45 P.M. - Outbound

L TARAVAL - VAN NESS STATION
Wednesday, September 16, 1981 - 4:50 P.M. - Outbound

N JUDAH - DUBOCE AND CHURCH
Wednesday, June 8, 1983 - 8:00 A.M. Inbound

FIGURE D-1 (CONTINUED):
PHOTOS OF PEAK MUNI LOADING CONDITIONS

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday, October 7, 1981 - 8:00 A.M. - Inbound

J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday, September 29, 1981 - 9:00 A.M. - Outbound

FIGURE D-1 (CONTINUED):
PHOTOS OF PEAK MUNI LOADING CONDITIONS

SOURCE
ENVIRONMENTAL SCIENCE ASSOCIATES, INC.

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table D-1 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure D-1 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE D-2: PEDESTRIAN FLOW REGIMEN

Flow Regime/a/	Choice	Conflicts	Flow Rate (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
	Design Limit - Upper Limit of Desirable Flow		
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure D-2.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

SOURCE
PUSHKAREV AND ZUPAN

FIGURE D-2:
PHOTOGRAPHS OF PEDESTRIAN FLOW LEVELS

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza—which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture—have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

FIGURE D-2 :
PHOTOGRAPHS OF PEDESTRIAN FLOW LEVELS (CONTINUED)

SOURCE
PUSHKAREV AND ZUPAN

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table D-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE D-3: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

TABLE D-4: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

APPENDIX E: WIND TUNNEL STUDY

This summary of wind study methodology is based on the report prepared by Bruce R. White, Ph.D., Associate Professor of Mechanical Engineering at the University of California, Davis. The study is independent of the University. This report is available for review at the Department of City Planning, Office of Environmental Review, 450 McAllister St., Fifth Floor.

A 1 inch = 50 ft. scale model of the downtown San Francisco area surrounding the proposed building for several blocks in all directions was provided by Environmental Science Associates, Inc. The model included three configurations (existing, project, and stepped design alternative project conditions). Buildings proposed, approved and under construction in the project area included in the model were: 562 Mission (now withdrawn), 49 Stevenson, 71 Stevenson, 90 New Montgomery, New Montgomery Place, Central Plaza, 315 Howard, 524 Howard, 135 Main, 123 Mission, 95 Hawthorne, 101 Mission, 160 Spear, and 144 Second St.

The model was tested in a wind tunnel that allows testing of natural atmospheric boundary layer flows past surface objects such as buildings and other structures. The tunnel has an overall length of 22 meters (m) (72 ft.), a test section of 1.22 m (4 ft.) wide by 1.83 m (6 ft.) high, and an adjustable false ceiling. The adjustable ceiling and turbulence generators allow speeds within the tunnel to vary from 1 to 4 meters per second (m/s) or 4.8 to 19.3 miles per hour (mph).

The wind study was divided into two parts: flow visualization and wind-speed measurements. The flow visualization observations were performed by injecting a continuous stream of smoke at various near-surface locations. The subsequent motion of the smoke was recorded, and prevailing wind directions were determined. Wind-speed measurements were made at 27 surface locations with a hot-wire anemometer, an instrument that directly relates rates of heat transfer by electronic signals. The hot-wire signals are proportional to the magnitude and steadiness of the wind. Both the mean wind speeds and corresponding turbulence intensities were measured. Thus, high wind speeds and gustiness (large variable changes in wind speeds over short changes in time) could be detected. Hot-wire measurements made close to the surface have an inherent uncertainty of $\pm$ 5% of the true values. The ratio of near-surface speed to freestream wind speed was calculated from the hot-wire measurements. These speeds are discussed in the text.

Experiments were performed for three prevailing wind directions (westerly, northwesterly, and southwesterly) for existing, project, and alternative conditions. These wind conditions are the most common in San Francisco, and are therefore the most representative for evaluation purposes. All hot-wire measurements were taken at the same series of surface points around the building site for the three wind directions and the site conditions.

The proposed project testing included five mature street trees, approximately 50 ft. tall, located adjacent to the proposed building on the south side of Mission St. Wind speed values recorded with the street trees probably underestimated actual wind speeds adjacent to the building on Mission St. (points 9, 10, and 11 shown in Table E-1). The measured speeds were 10.6 mph, 2.1 mph, and 4.1 mph, respectively, rather than the adjusted 12.6, 4.1, and 6.1 mph shown in the Table. Since the scaling of mature street trees is difficult to achieve in wind-tunnel testing, wind speeds at each of these three points were increased by two mph to more realistically scale wind speeds. The adjusted values were used in the evaluation of project impacts and are listed in Table E-1: Wind Speed Effects.

Mitigation

Measures suggested to limit wind speed increases on Mission and Minna Streets adjacent to the project include:

- planting of street trees (proposed);
- construction of kiosks for vendors, telephone booths, and planters (proposed);
- construction of a projection or overhang on the Mission Street frontage to deflect winds away from the sidewalk (proposed); and,
- designing the project footprint to allow a setback of the structure from Minna Street (not proposed).

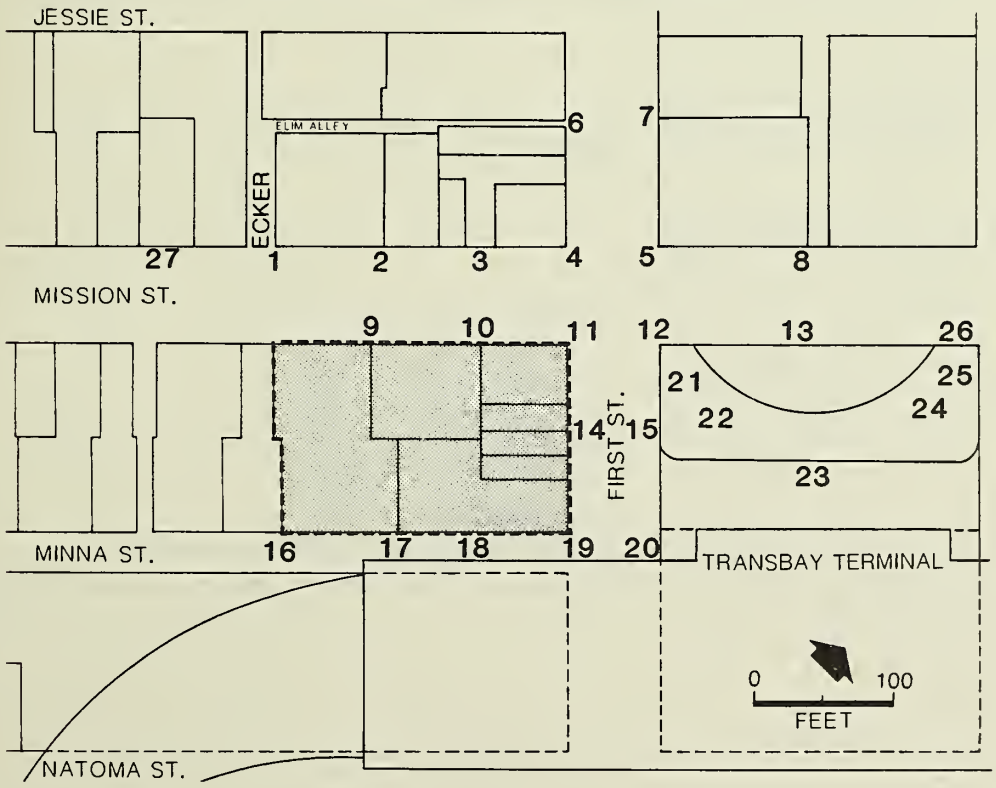
In addition to these mitigation measures, it was noted that increased high-rise development upwind (southwest) of the project would reduce speeds of surface winds reaching the site and thus reduce wind effects of the building (not applicable to this project).

TABLE E-1: WIND SPEED EFFECTS

Wind Measurement Location	Wind Direction and Development Case/a/					
	Northwest		West		Southwest	
	1	2	1	2	1	2
1	1.0	1.9	5.3	3.2	8.9	7.6
2	1.2	1.4	3.2	2.5	4.7	9.0
3	1.0	1.7	3.1	3.0	6.9	12.0
4	5.5	4.2	2.2	2.9	4.9	7.9
5	6.5	6.2	6.2	6.0	4.0	5.9
6	6.5	7.2	2.2	2.1	3.0	5.7
7	6.7	6.5	4.9	4.8	1.3	3.4
8	2.5	2.6	4.0	3.9	4.4	4.5
9	1.2	1.7	2.6	1.6	9.3	12.6*
10	1.2	1.2	2.6	2.3	9.4	4.1*
11	3.5	4.1	3.8	4.9	8.2	6.1*
12	4.3	5.6	3.6	5.6	6.7	11.2
13	2.1	2.2	5.4	5.1	8.3	7.0
14	5.3	4.3	2.0	1.8	2.7	4.2
15	3.9	4.4	2.2	2.5	3.9	4.3
16	1.5	1.3	5.0	5.7	9.6	5.3
17	1.4	1.7	5.7	6.8	9.7	10.4
18	2.8	2.1	4.1	4.2	8.9	15.1
19	3.4	3.5	3.8	2.1	5.2	8.8
20	4.0	3.9	2.5	2.2	4.0	3.3
21	2.6	2.5	3.3	3.3	6.1	9.2
22	3.0	2.7	2.9	3.2	5.2	7.2
23	2.8	2.9	5.2	3.3	7.1	3.0
24	2.5	2.7	6.1	4.9	7.6	6.2
25	2.2	2.4	5.0	5.2	7.6	5.1
26	2.1	2.0	6.2	5.8	7.5	6.7
27	1.4	1.2	4.3	4.3	8.1	8.3

/a/ Case 1: Existing Setting
Case 2: Proposed Project
* Adjusted values; see text in Appendix E.

SOURCE: Bruce White, Ph.D.



APPENDIX F: SAN FRANCISCO AIR POLLUTANT SUMMARY 1981-1983

STATION: 900 23rd Street, San Francisco

POLLUTANT:	STANDARD		1981	1982	1983
OZONE (O3) (Oxidant)					
1-hour concentration, ppm/a/					
Highest hourly average	0.10 /b/	0.12 /c/	0.07	0.08	0.13
Number of excesses of state standard			0	0	1
Expected Annual Excess (federal)/d/			0.0	0.0	0.3
CARBON MONOXIDE (CO)					
1-hour concentration, ppm					
Highest hourly average	20 /b,e/		8	12	7
Number of excesses of standard			0	0	0
8-hour concentration, ppm					
Highest 8-hour average	9 /b,c/		5.3	9.1	5.1
Number of excesses of standard			0	1	0
TOTAL SUSPENDED PARTICULATE (TSP)					
24-hour concentration, ug/m3/a/					
Highest 24-hour average	100 /b,f/		103	126	117
Number of excesses of standard/g/			1	3	4
Annual concentration, ug/m3					
Annual Geometric Mean	60 /b,f/		56	57	55
Annual excess of standard			No	No	No
LEAD (Pb)					
30-day concentration, ug/m3					
Highest 30-day average	1.5 /b/		0.6	0.7	0.4
Number of excesses of standard			0	0	0
NITROGEN DIOXIDE (NO2)					
1-hour concentration, ppm					
Highest hourly average	0.25 /b/		0.11	0.13	0.13
Number of excesses of standard			0	0	0
SULFUR DIOXIDE (SO2)					
24-hour concentration, ppm					
Highest 24-hour average	0.05 /b/		0.016	0.012	0.018
Number of excesses of standard/g,h/			0	0	0

/a/ ppm: parts per million. ug/m3: micrograms per cubic meter.
/b/ State standard, not to be equaled or exceeded, except for CO standards, which are not to be exceeded.

(Continued)

APPENDIX F: SAN FRANCISCO AIR POLLUTANT SUMMARY 1981-1983 (Continued)

/c/ Federal standard, not to be exceeded more than once per year, except for annual standards, which are not to be exceeded.
/d/ Expected Annual Excess is a three-year average of annual excesses of the federal standard.
/e/ The state one-hour CO standard was revised from 35 ppm to 20 ppm in January 1983. The federal one-hour standard remains 35 ppm.
/f/ CARB has redefined the state particulate standard to apply to "inhalable" particulates only (i.e., those which have a diameter less than ten microns). The new standards are 50 ug/m^3 for 24-hour averages and 30 ug/m^3 for the annual geometric mean. No data is currently available on the particle size distribution of the TSP sampled at the San Francisco monitoring station. According to CARB, however, the new standards are "reasonably equivalent" to the old standards shown in the table above.
/g/ Number of observed excess days (measurements taken once every six days).
/h/ Exceeding the SO2 standard is a violation only if a concurrent excess of the state ozone or TSP standards occurs at the same station. Otherwise, the federal standard of 0.14 ppm applies.

SOURCE: BAAQMD, 1981 - 1983, Air Quality in the San Francisco Bay Area; and CARB, 1981 - 1983, California Air Quality Data.